

NOVEMBER '60

MODERN TEXTILES

MAGAZINE

Specializing in Man-Made Fibers and Blends since 1925

FIBERS

FABRICS

FINISHES



Virginia Mills'
JULIAN BAKER
leads an old
firm's search
for a new
market identity —
story page 21

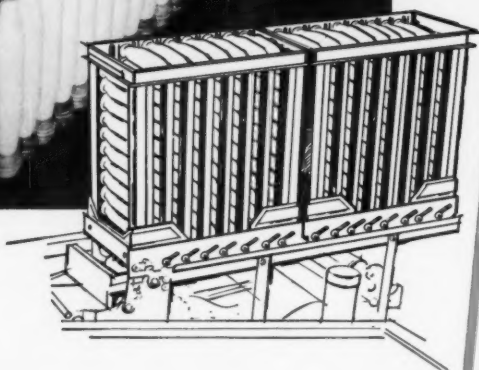
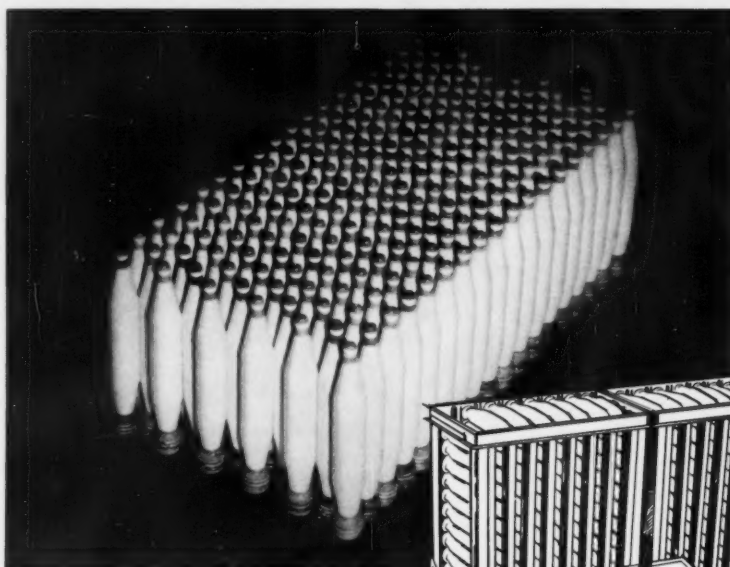
NEW INDUSTRIAL USES FOR FABRICS

Protection for textile designs

New advances in dyeing, finishing

Arnel 60—stronger triacetate fiber

AND 11 MORE HELPFUL ARTICLES AND TIMELY REPORTS



REDUCE FILLING HANDLING... TO A MINIMUM

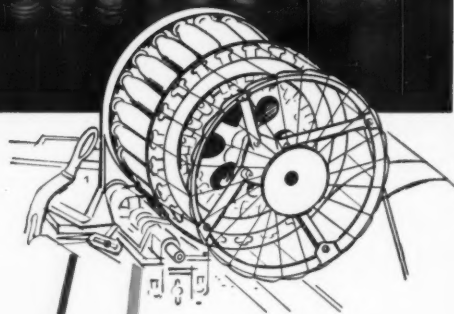
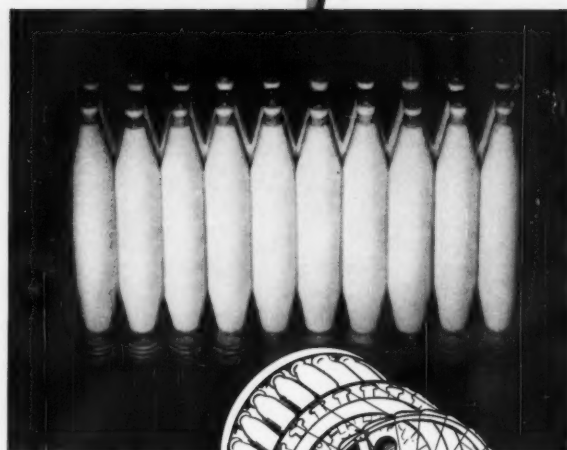
The Draper Automatic Filling Magazine with a bobbin supply of as many as 192 bobbins* reduces weave room costs.

This increased bobbin capacity, over the conventional Rotary Battery eliminates much of the cost of delivering filling yarn to the loom. More continuous loom operation, cleaner yarns and fewer cloth seconds are also direct advantages gained from the use of this magazine.

Compare the Draper Automatic Filling Magazine with the conventional battery and see for yourself the many benefits that can be obtained.

For additional information consult your Draper representative.

**1 1/4" diameter bobbins*



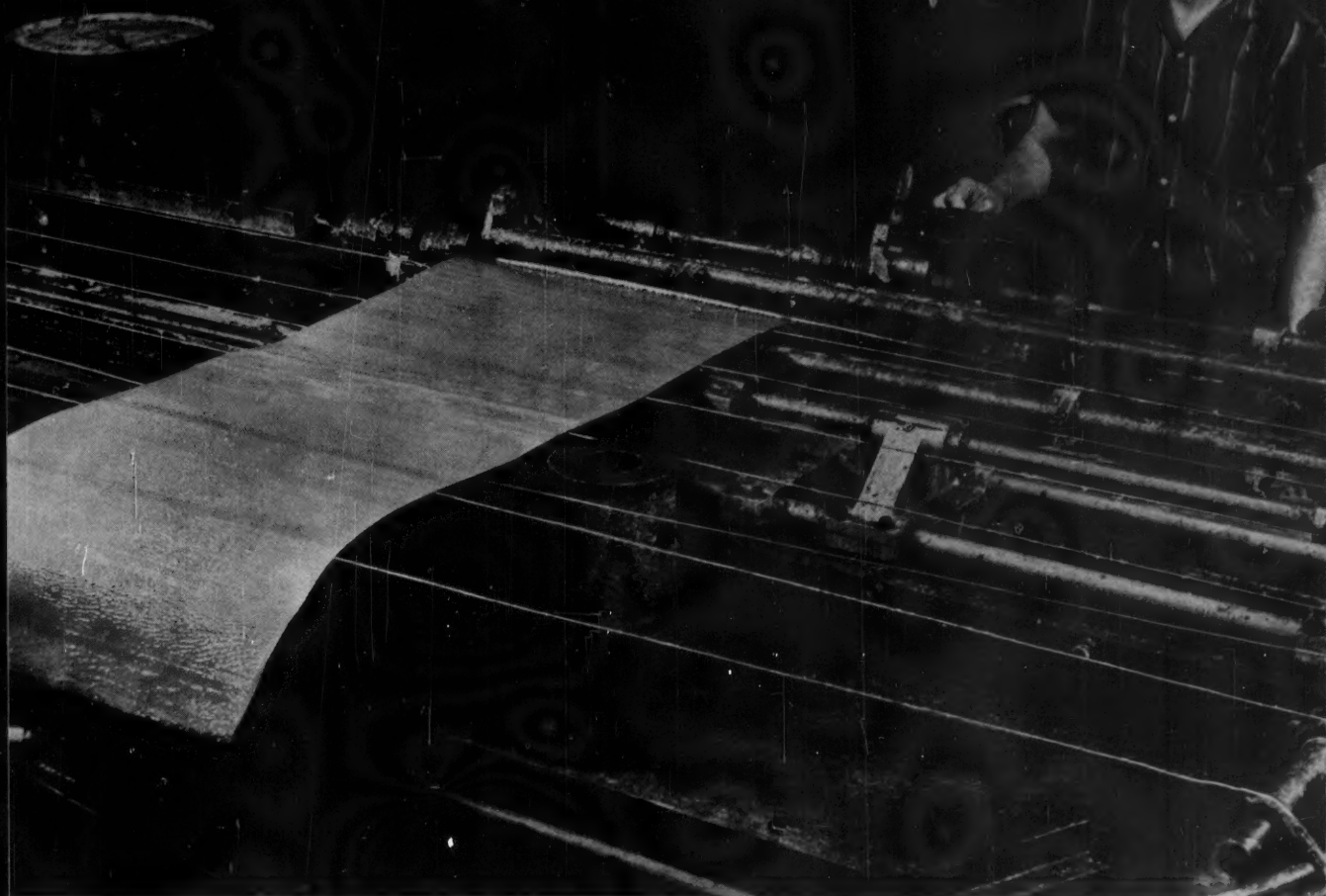
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Sonoco convolute tube production.

Get top efficiency with Sonoco convolute tubes!

To produce yarn tubes or cloth cores which assure trouble-free operations, experience is a "must"—and *Sonoco has it*—plus the proper raw materials and equipment. What's more, Sonoco tubes are designed and manufactured to meet the customer's most exacting requirements.

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CONTENTS

Publisher's Viewpoint

A Progress Report for Readers and Advertisers 19

Features

Virginia Mills Posts Its Name in the Market 21
by Jerome Campbell

Sampling and Testing Plans for Mill Quality Control—Part 2 27
by Norbert L. Enrick

Copyrighting Textile Designs 41
by V. Alexander Scher

AATCC Convention Report 46

U. S. Textile Machine Co. Shows New Machines 56

Industrial Fabrics 63
by William E. Hoffman

American Association for Textile Technology, Inc. Papers

Arnel 60—A new, stronger triacetate Fiber 71
by Claude S. Clutz, Howard F. Elsom and Robert D. Williams

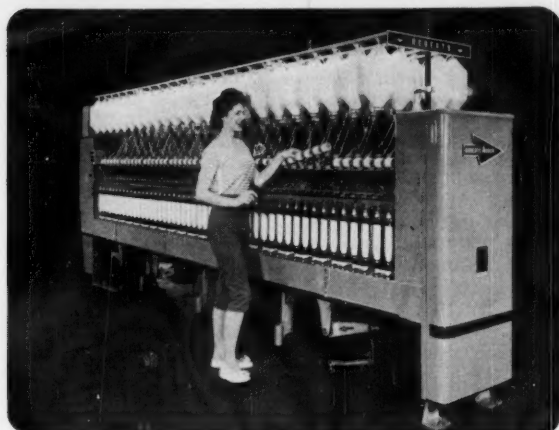
Departments

Worldwide Textile News 20
New Machinery—New Equipment 54
New Fabrics—New Yarns 60
TDI News and Comment 61
Textile Newsbriefs 78
Dyeing and Finishing Notes 80
Yarn Prices 85
Calendar of Coming Events 100
Advertisers Index 100

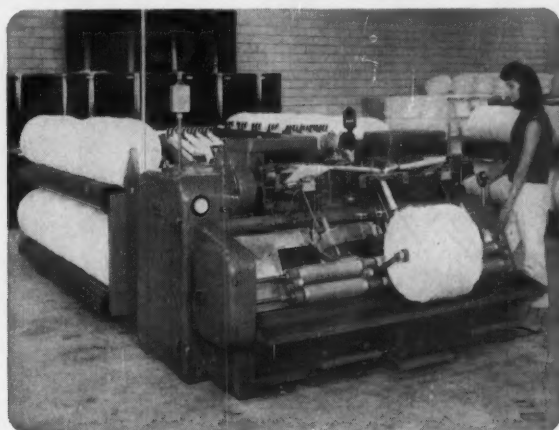
ROBERTS

YARN MAKING MACHINERY

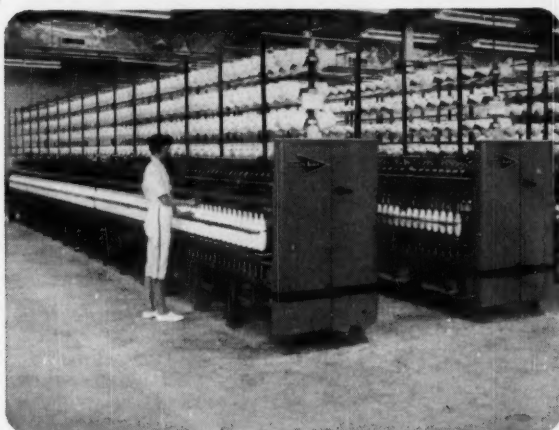
for Cotton, Worsted, or Long Fiber Systems



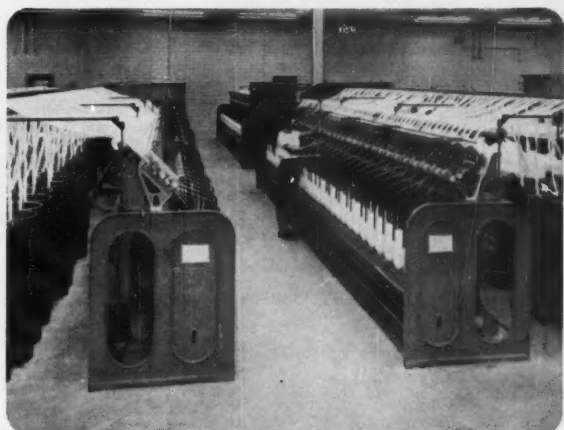
ROBERTS ARROW SPINNING for both cotton system and long fiber system yarn spinning for natural and synthetic fibers and blends. High speed, all ball bearing, big package Arrow Spinning Frames in 25-inch or 36-inch width. Exceptional flexibility and simplicity of operation in the manufacture of improved quality yarns at reduced costs and modest initial investment.



ROBERTS-TEMATEX worsted system preparatory machines, including ParaBlenders, ParaDrafters and AutoEveners, are rugged, high performance machines for pinning, parallelizing, drafting and blending worsted and synthetic fibers prior to roving and spinning, and in top making plants. AutoEvener automatically and instantaneously corrects delivered sliver weight to within plus or minus 1%.



ROBERTS TWISTERS for plying yarns are completely ball bearing equipped and designed for high speed ring twisting operations. 25- or 36-inch frames. Up to $3\frac{1}{2}$ -inch rings and 12-inch bobbins. Package weights $1\frac{1}{4}$ pounds on cotton, $\frac{3}{4}$ to 1 pound on worsted.



ROBERTS ROVING FRAMES are ball bearing rebuilt and feature all-new heavy duty ball bearing Roberts Double Apron Drafting Systems for cotton, short staple or long fiber synthetics, worsted and blends. 10x5 and 12x7 packages. Provisions for double headed spools.

Simplicity of design, rugged construction and high speed ball bearing operation are the trade marks of all Roberts Company machinery. Roberts also supplies rebuilt spinning frames and modernization change-overs for mills' existing machinery.

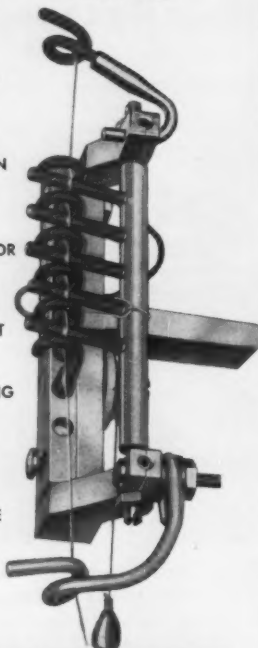
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SANFORD, NORTH CAROLINA

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"PAT-TEND"

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- ADJUSTABLE FOR DIFFERENT YARNS
- QUICK TO DAMPEN INPUT TENSION VARIATIONS
- LONG WEARING HEANIUM[®] PARTS
- CONSTANT OUTPUT TENSION
- MOVING GATE SECTION PIVOTED FOR DRAG FREE ACTION



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PAT-TEND can be used in a vertical or horizontal position and solves a wide variety of tensioning problems due to yarn peculiarities and package deformations.

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PLUS tension position for heavy deniers



NEUTRAL tension position for medium deniers



MINUS tension position for 0 or low twist yarns

Initial tensioning is increased as the adjustable "hook" member is set from right to left as indicated above. Uniform output tension is automatically maintained by the desired weight hung over the pulley.

HEANY INDUSTRIAL CERAMIC CORP.
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Southern Representatives: R. L. Carroll,
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Fiber-Sealed Jersey

Patents have been applied for covering a new Du Pont textile research development, designated as a fiber-sealed process. First commercial use of the new jersey, which consists of 80% Orlon acrylic fiber and 20% wool, has been made by Alamac Knitting Mills which is currently marketing it under that firm's trade name of "Thalmatte." The jersey made by the fiber-sealed process is said to keep its shape and full body, and will resist crushing and sagging because of the manmade fiber. For further information write the editors.

Creslan in Nonwovens

Commercial development programs designed to create a broader potential in nonwoven applications for Creslan acrylic fiber have been launched by American Cyanamid Co.'s Fibers Division. End-uses seeking to utilize the properties of Creslan—such as its high level of chemical resistance, resilience and dimensional stability—will be emphasized.

Publish L22 Standards

Publication of the recently-approved American Standard L22 has been completed. Copies are available from Department PR175, American Standards Association, 10 East 40th St., New York City. The two-volume standard, costing \$6, sets down the performance requirements for a variety of textile fabrics regardless of fiber content, and the test methods to be used to determine compliance with this requirement.

Nonwoven Glass Fabrics

Flexlan Type 100, a nonwoven bonded fiber glass fabric, is now being produced by Borlan Corp. The fabric comes in 48 and 60-inch widths and weights of 6¼ to 12 ounces per square yard. It is expected to find application in decorative panels, lamp shades, lighting panels, luggage reinforcement wall coverings and reinforcement for plastics.

Polyester Plastic Sheets

Polyester plastic sheets made from a new resin are being manufactured and marketed by Acme Backing Corp. The new resin is supplied by Eastman Chemical Products, Inc., producers of man-made fibers. Acme manufactures flexible packaging materials, metallic yarns and coated textiles. An affiliated company has been organized to produce the sheeting, which will be marketed and served by Acme under the trademark Terafilm.

Nonwoven Synthetic Leather

Lantor, Ltd., Bolton, England, has developed a nonwoven synthetic leather. Lantor, while refusing to disclose technical details, said full-scale output was scheduled for this year. Lantor is jointly owned by Tootal, Ltd., in Bolton, and by the West Point Manufacturing Co., a U. S. firm. The new product is expected to have applications in the leather, leathercloth and plastics fields.

White Nylon Yarn

Development of a new whiter nylon yarn, Type 91 nylon, for use in foundation garments has been announced by Du Pont. The new product is a continuous filament yarn said to offer good texturing performance, fabric uniformity, and stitch clarity. In addition, it has a built-in whiteness that minimizes the need for bleaching or whitening steps in garment manufacture. Du Pont is making sample quantities available to customers in 70 denier, at \$1.80 a pound, and 140 denier at \$1.60 a pound. Additional yarn counts are planned. For further information write the editor.

Hospital Blanket Usage

Blankets woven of 100% Dynel modacrylic fiber offer the best quality for all-round hospital use, according to Hospital Bureau, Inc., non-profit central purchasing agency for 300 member hospitals. The report by the bureau's research department was based on controlled laboratory and actual use tests of 6 types of hospital blankets. Chief among the advantages cited for Dynel blankets for institutional use by the bureau are exceptional tensile strength, minimum shrinkage, stain resistance and non-flammability.

More Caprolactam Monomer

Construction to expand caprolactam monomer capacity by 75% is under way at Hopewell, Va., Allied Chemical's National Aniline Division announced. Expansion also is under way at the company's Chesterfield, Va., facilities to increase output of caprolactam polymer, Golden Caprolan nylon tire yarn and other industrial and fabric units. Completion of the multi-million dollar expansion program is scheduled for mid-1961.

Metro-Atlantic Expands

Metro-Atlantic, Inc., is planning to build a new modern chemical plant on 20 acres of land it has purchased in Simpsonville, S. C., it was announced by Henry Papini, executive vice president.

If It's
Made From



**TURBO-
ORLON**

It's Made
From the



No. 1
SWEATER
YARN

HERE'S WHY:

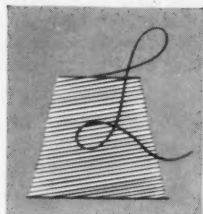
In the Turbo process fibers of famous DuPont Orlon* are s-t-r-e-t-c-h-e-d and b/r/o/k/e/n into variable lengths. Some fibers are then relaxed in a special steam process before blending with stretched but unrelaxed fibers . . . to produce a High Bulk yarn of superior loft and hand.

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- INTERLOCKED
- JERSEY
- FULL-FASHIONED

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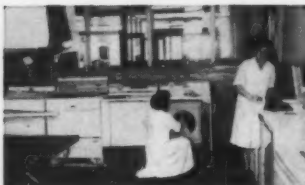
Contact a licensed Turbo mill . . . over 50 in United States and Canada

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NOVEMBER, 1960

1006



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DYE AFFINITY—Because Vycron has unusual affinity for dye color, it offers the fabric designer a more effective palette for his creative ideas.



WEAR RESISTANCE—Vycron's high degree of wear resistance shows up in the fabric and garment in two ways: greater tensile strength and greater resistance to abrasion.



STRENGTH—Vycron's general superiority in strength means better loom performance, makes possible lighter, sheerer, more serviceable fabrics and garments.



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Before any mill can label its grey goods or finished fabrics with the Vycron name, the fabrics must first be tested and certified by the Testing Company against specifications. The Vycron polyester fiber content, for example, must meet our standards for the particular fabric construction in question. And all performance claims must be fully substantiated by scientific test. The same regulations apply to converters for finished goods.

But even that isn't enough for Vycron!

The Vycron fabrics in the end-use products themselves... apparel, home furnishings, industrial goods... must meet control standards before they can be identified by the Vycron name. Moreover, the United States Testing Company, Inc., will purchase these products on the open market for check-testing on a regular program basis, as long as they continue to feature the Vycron name.

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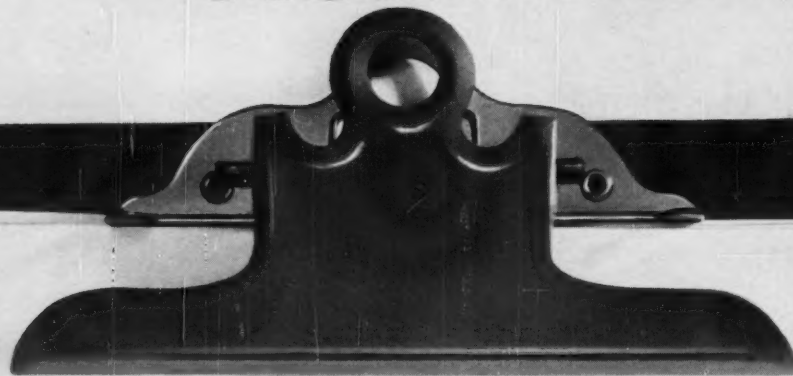
- ✓ Tension motion let-off control
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- ✓ Simplified beam loading

... all supported by sound, sturdy, and precise manufacturing techniques. Compare the performance, and fabric quality of the Reading Tricot Machine with any of your present machines — new or old, fast or slow. Call us today. Textile Machine Works, Reading, Penna.

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ACETATE... one



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X

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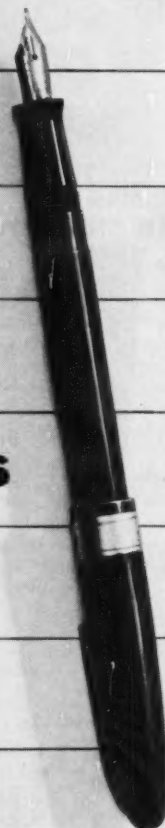
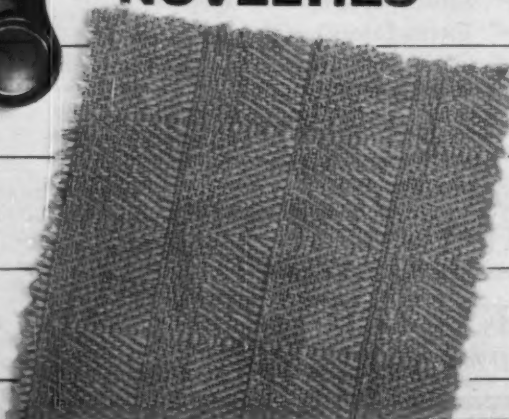
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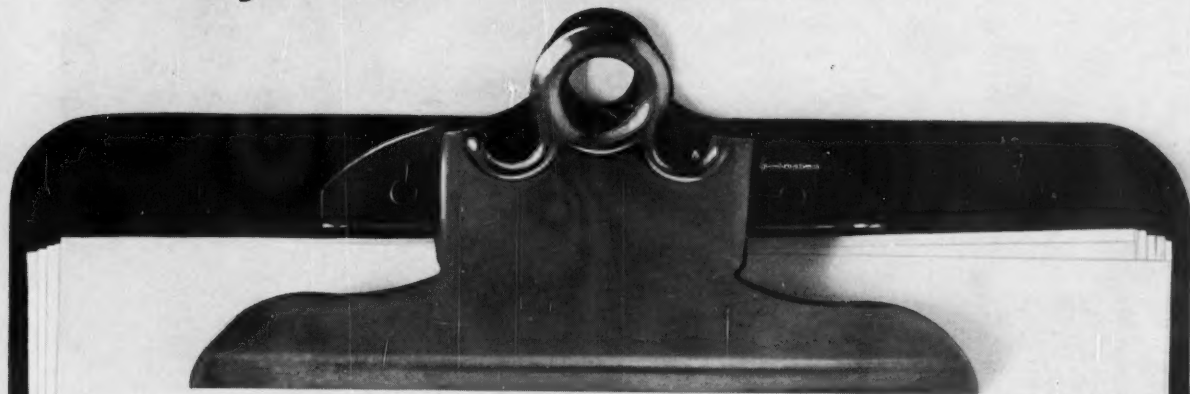
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EXPORT SALES: Amcel Co., Inc., and Pan Amcel Co., Inc., 180 Madison Ave., New York 16.

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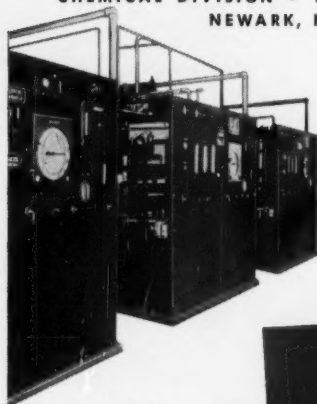
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NYLON "ORLON"* "DACRON"***
ACRYLIC FIBER POLYESTER FIBER
...GIVE YOU A SELLING EDGE!



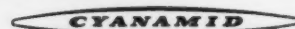
BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

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Success was built into this fiber by giving it the spinning, processing, and dyeing properties you require. Demand for Creslan is growing, due to its many built-in assets. Find out how this versatile fiber can serve your needs. Write for TECHNICAL DATA BULLETIN containing the full facts. Creslan acrylic fiber is a product of American Cyanamid Company, Fibers Division, New York.



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"There is less yarn breakage."

ALL THIS PLUS

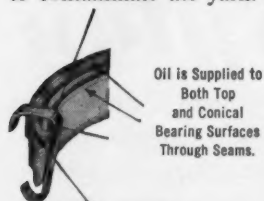
- More Uniform Lubrication Without Oil Waste.
- Longer Traveler Life.
- Longer Ring Life.
- Reduced Maintenance.
- Increased Production.
- Decreased Costs.

Now, "M" Type Herr Conical Rings introduce a new method of lubrication called Seam Lubrication. By the principle of capillary attraction oil finds its way from the reservoir through the top and side seams to the wearing surfaces. The minute seams, so fine that they are hardly visible, control the amount of flow so that every drop of oil is utilized. There is no waste—no oil surplus to contaminate the yarn. The operation is clean. There

is no rewicking. Maintenance costs are lowered. Oil consumption is greatly reduced, yet faster spindle speeds are possible without extra wear to ring or traveler.

The "M" type Herr Ring has been thoroughly tested for several years in some of the largest textile plants.

Write today. Let us give you all the facts that lead to greater profits for you.



Oil Flows to Annular Reservoir Within the Ring, Then is Drawn by Capillary Action Through Seams.



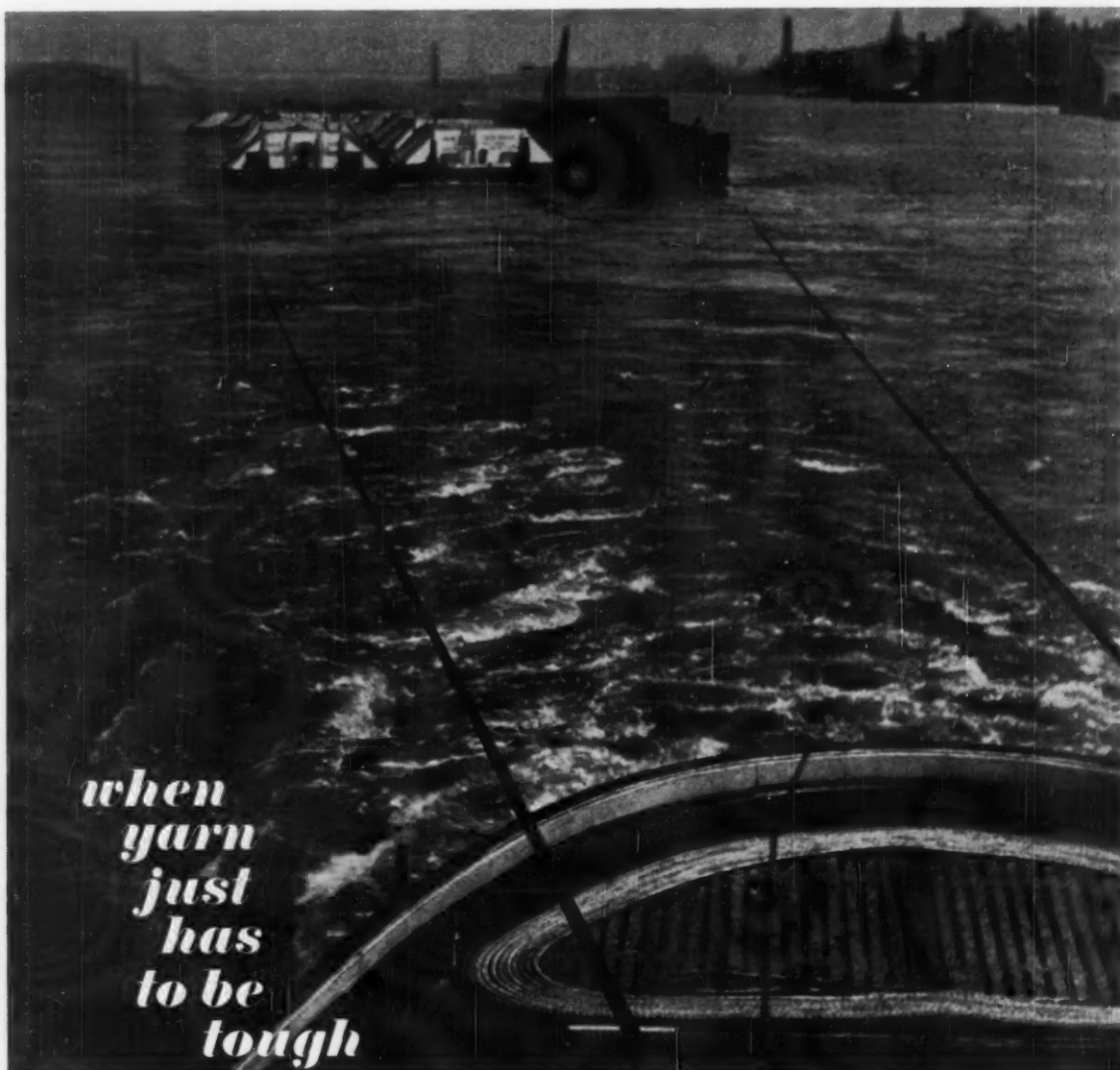
The 5" diameter 43/64" face Herr "M" Type Ring has only one oil cup. Herr travelers are specially designed to provide best results with this ring.

HERR

MANUFACTURING CO., INC.

308 FRANKLIN STREET • BUFFALO 2, N. Y.

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON, FIBERGLASS AND BLENDED YARNS OF ALL TYPES



*when
yarn
just
has
to be
tough*

*it
better
be*

Golden Caprolan Nylon

It takes a tough yarn to deliver the goods — and tough is the word for high-tenacity Golden Caprolan® by Allied Chemical. But Golden Caprolan is more than just a tough yarn. It is a remarkably versatile yarn that offers a unique combination of superior performance qualities including unsurpassed resistance to abrasion, excellent rubber adhesion, greater resistance to flex fatigue, and trouncing qualities not obtained from other yarns. Golden Caprolan established a new criterion for heat stability



Fiber Marketing Dept., 261 Madison Ave., New York 16, N. Y.

in nylon tire yarn and a new standard of strength for heavy-duty marine ropes. Golden Caprolan is performing superbly in conveyor belts, tarpaulin fabrics, high-strength industrial webbings, and other applications where heavy-duty performance is essential. If you have a tough job, we have the tough yarn for it. Our technical service, end-use development and fiber application staffs are ready to help.

 **GOLDEN**
caprolan
NYLON OF THE 60's

MODERN TEXTILES

Magazine

Publisher's Viewpoint

A Progress Report for Readers and Advertisers

With our special review of new developments in industrial fabrics in this issue, MODERN TEXTILES MAGAZINE completes the new editorial program spaced throughout the calendar year which we announced last December. We are happy to report that our new approach to a balanced year-round series of special reports covering all major aspects of textile progress has been enthusiastically received by our readers. Many of them have written, and many others have stopped us at trade gatherings and in our travels throughout the textile industry to tell us how helpful they find our new editorial direction.

So encouraged have we been by this reception of our new editorial program that we plan to maintain it and enlarge its usefulness in the coming year. Our readers will recall the basic plan of our new program of keeping them informed on all new developments in every major area of fabric manufacturing and marketing. The new approach begins each year with our January issue. In it we present an advance report on new fabrics in the broad field of home furnishings.

Keyed to January Market

The home furnishings review appearing in our January issue coincides with the big January home furnishings market in Chicago—a time when the textile industry and its customers are keenly interested in the new trends in home furnishing fabrics. In our January issue this year, we presented the first of these reviews of home furnishing developments. We will present another of these advance reports in our next January issue.

In June we published a review of new apparel fabrics and the contribution made to progress in such fabrics by manmade fibers. This review will again be presented in our June, 1961, issue, and we intend to make it even more comprehensive and informative than last June's piece.

In our September issue we reached the high point of our new editorial program with our special section, the Deskbook of Manmade Fiber Facts, which included our unique and widely used Pullout Tables of Denier Numbers and Filament Counts for U.S. Manmade Fibers. The purpose of our Deskbook is to provide a reliable

guide reference by people in textiles and allied industries to the increasing number of man-made fibers and their respective properties and areas of end use.

The response to this new editorial feature has happily exceeded our expectations. We have already received orders for close to 2,000 reprints from a wide variety of companies and individuals in many areas of textile manufacturing and distribution. Some firms ordered large numbers of copies for distribution to their internal staffs and their customers. Incidentally, for those who may still want to order reprints, a limited quantity is available.

New Features in '61

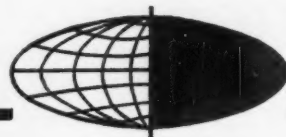
In 1961, we shall add several special issues to the issues making up our basic editorial program as we have outlined it above. In April, we shall present a special report on progress in textile machinery and knitting technology, timed to coincide with the big Knitting Arts Exhibition to be held at Atlantic City, April 23 to 28. And in October, we will feature a review of new developments in dyeing and finishing to coincide with the Annual Convention of the American Association of Textile Chemists and Colorists to be held in Buffalo.

Having started this new program in 1960 and having brought it to completion with our review of industrial fabrics in this issue, we feel that we have learned much in the process as to how we can improve our editorial program in 1961. We intend to apply the lessons learned by our first time around and make the second presentation of our new 12 month editorial effort better than it was in 1960.

In this effort, we think our readers can help. We, therefore, invite your comments and suggestions as to how we can improve our editorial effort to present a rounded, broadly comprehensive series of articles keeping you informed of the new and potentially profitable developments in all major areas of textiles.

A. J. McCallough

TEXTILE NEWS



World Wide

THREE JAPANESE FIRMS have come up with new manmade fibers which seem certain to have a wide impact on the textile industry. Toyo Spinning is set to produce a graft-polymerized textile of rayon and acrylonitrile which is said to have a higher strength against bending and greater capacity to take dyestuffs than ordinary acrylic fibers. An 1,100-pound daily test plant will be erected soon and commercial 22,000-pound daily plant put up in a year.

A SECOND COMPANY, Dai Nippon Spinning, expects to produce a cotton-vinyl-alcohol grafted fiber under the trade name of Jubiran. This is a special warmth-holding fiber for such uses as blankets, sweaters and quilts. Production would reach 6,600 pounds per day.

AND GRAFT POLYMERIZATION of acrylic monomer to rayon is now being produced by Kanegafuchi Spinning. Its trade name is Lonbell.

AN IMPROVED ACRYLIC produced by Asahi Chemical Industry Co., is due to reach the market by next April. It is an F-Type Cashmilon especially suited for dyes and intended for underwear and sweaters.

US, BRITISH TEXTILE MEN agreed on at least one point at the annual meeting of the International Federation of Cotton and Allied Textile Industries in Amsterdam. This was that low-cost imports from Hong Kong, India and Pakistan, especially, constitute a threat to the U. S. and U. K. home markets. Wages in these countries, it was agreed, create unfair competitive conditions. No more liberalization of trade should be fixed by governments, and some cutback on imports ought to be arranged.

INDIA IS HELPING cotton madras makers as a result of the decline in exports to the United States. New Delhi is ready to offer interest bearing loans to the Madras State Handloom Weavers Cooperative for the purpose of advancing 50% of the value of the cloth pledged by members.

AN ARGENTINE NYLON PLANT is under construction in the Province of Chubut. Built by Prensyl S. A. of Rawson, it will represent an investment of some 50 million pesos, or about \$600,000. Total Argentine output of synthetic yarn is

expected to reach 220,000 pounds a month by the end of 1960, according to the Argentine Chamber of Synthetic Yarns and Fibers.

GERMAN FIRMS SET UP French marketing operation. The two German companies are Vereinigte Seidenwebereien and Krefelder Seidendruck. Their French marketing company is Societe Commercial de Tossis Crenova.

GERMANY MAY BE Europe's biggest producer of acrylic fiber in 1961. This prediction was made by German textile technician Otto Croon at the Italian State Technical and Industrial Institute for Textiles and Chemicals. He also forecast that U. S. production figures in 1965, as compared with 1958, would show synthetic fibers, up 145%; cellulose fibers and cotton, down 9% each, and wool 3% lower.

GERMAN TEXTILE MACHINERY makers expect 1960 will see an all-time high production figure. Paced by exports, both to the Common Market, of which Germany is a member (27.5%) and to the European Free Trade Association (20%) which does not include Germany, 1960 total sales should hit DM one billion (about \$238 million). Companies order books are generally filled seven to 10 months ahead.

COURTAULDS IS READY for broad expansion of production of its acrylic fiber "Courtelle." The company announced that output will reach 32.2 million pounds yearly when the Grimsby plant starts commercial operation. The Courtelle plant at Calais, France, will turn out 10 million pounds annually after it gets started in 1961. The company has also shipped complete plants to Russia and Yugoslavia. The acrylic fiber has been used in knitted outerwear and jersey fabrics. Greater use was forecast for dress clothing, carpets, pile fabrics, blankets, suitings, trousers, hand-knitted yarns and industrial applications.

BRITAIN WILL MAKE Italian polypropylene fiber, Meraklon. This was announced in Zurich following signature of a contract between Montecatini, developer of Meraklon, and Imperial Chemical Industries, which already has the rights to use it in plastics. ICI will produce 10,000-tons yearly at its Wilton plant, under construction.

Virginia Mills posts its name in the market

For 90 years Virginia Mills sold through commission agents. Two years ago it set up its own sales staff and sought its own customers. Here is the thinking behind this new strategy

By Jerome Campbell
EDITOR, MODERN TEXTILES MAGAZINE

CURRENTLY on the crowded, crucial battleground of the New York fabric market, an old, highly respected, but up to now completely obscure mill is battling to establish an identity for itself and win a place in the warm sun of profitable business. In the long story of Virginia Mills of Swepsonville, North Carolina, one can find in miniature the history of the textile industry in the South. And in its current struggle to win a new identity for itself among buyers of fabrics can be found the struggle that is facing so much of the fabric manufacturing industry today.

Like so many reputable and otherwise indistinguished mills in the South, Virginia is an old outfit, its beginnings going back almost a full century to

1868, the year it was set up by George W. Swepson. It started out, as so many other southern mills, as a local enterprise intending to provide employment for local people and consume locally grown cotton in rural Alamance County in central North Carolina. Through good times and bad, the mill stayed alive somehow and continued to grow. The quality of the cloth it produced improved gradually as the 19th century gave way to the 20th; machinery grew more complex and more productive; and the long, long, working day of the strictly laissez faire 19th century—from sunrise to sunset five days a week and until 4:30 P.M. on Saturday—grew shorter while wages edged upward slowly from the unbelievably low rates of the earliest

THREE HEADS ARE BETTER THAN TWO—Evaluating sample fabrics, Virginia Mills' New York sales team of William H. Smith (left) in

charge of drapery and upholstery fabrics and Robert Hornstein (center) in charge of apparel fabrics, gets the advice of stylist Jack Steiger





W. W. Lambeth

Vice president in charge of production at Virginia Mills

days—30 cents a day for the highest paid help. The old records at Swepsonville reveal that one woman, a Mrs. W. A. Crutchfield, was paid five cents a day for running a warp machine.

When, a few years ago, the competitive climate in textiles grew suddenly sharper following the end of the postwar sellers' market, Virginia Mills stood in a fairly sound position. It possessed a well-equipped and, for the most part, modern plant mustering some 38,000 spindles and 500 looms. Over the years since it had been reorganized and launched on a new lease on life in 1933, the mill had divided its production fairly evenly between cotton and rayon cloth for the apparel trades, and upholstery and drapery fabrics. For a good many years, Virginia Mills had sold its output through the New York commission house of J. W. Valentine & Company. Like all other mills in recent years, Virginia felt the painful pinch of competition as demand for fabrics lost its voracious and indiscriminating appetite and began to pick and choose and show a finicky desire to be hard to please.

Decision to Seek a New Identity

The great question that confronted Virginia Mills' management at that time was what course to take to stay in business and remain a profitable organization. The company was then headed by Ashby Lee Baker, Jr., as president, and Walter M. Williams, as executive vice president. These men were determined to shape a course that would enable Virginia to remain in business and continue to grow even in the strenuously difficult period that seemed, beyond a doubt, to have arrived for the whole industry. They realized that, while not a big outfit when compared with the multi-plant giants of the industry like Burlington and Stevens, nevertheless Virginia Mills, with its 800 employees, its substantial investment in equipment and its sales volume running close to \$10 million a year, was in no sense a small mill either.

They set out to create a place in the market for Virginia Mills in which it could most effectively utilize

its advantages of medium size, long experience in weaving high style fabrics and its flexibility and freedom from big corporation overhead. As a first step in their program to create a new future for Virginia Mills, they decided to leave Valentine and set up their own sales office. Their aim was to achieve a sharply distinct identity among the converters in New York who had long been its major customers.

It was not, of course, as Julian T. Baker, who is now president of Virginia says, that the mill's relations with Valentine had not been satisfying and entirely friendly; they had been that for many years. The big compelling reasons for severing relations with the commission house and starting out on its own was the conviction that Virginia could do better with its own sales office and sales staff. Space was rented in 1457 Broadway and a pleasant, commodious office set up. The sales and styling staffs to man this office were largely recruited from Valentine people who had worked on the Virginia Mills account for years and were thus familiar with its customers and its position in the market.

Recruited from Valentine

Among the men who came from Valentine were Robert Hornstein to take charge of the New York office, William Smith to head up sales of drapery and upholstery cloths, Jack Steiger, a thoroughly seasoned stylist widely respected in New York textile circles for his work, and John Schoeberlein, who like Steiger, is a Swiss-trained stylist with a deep background, based on years of experience, in styling fabrics for the New York converting trade.

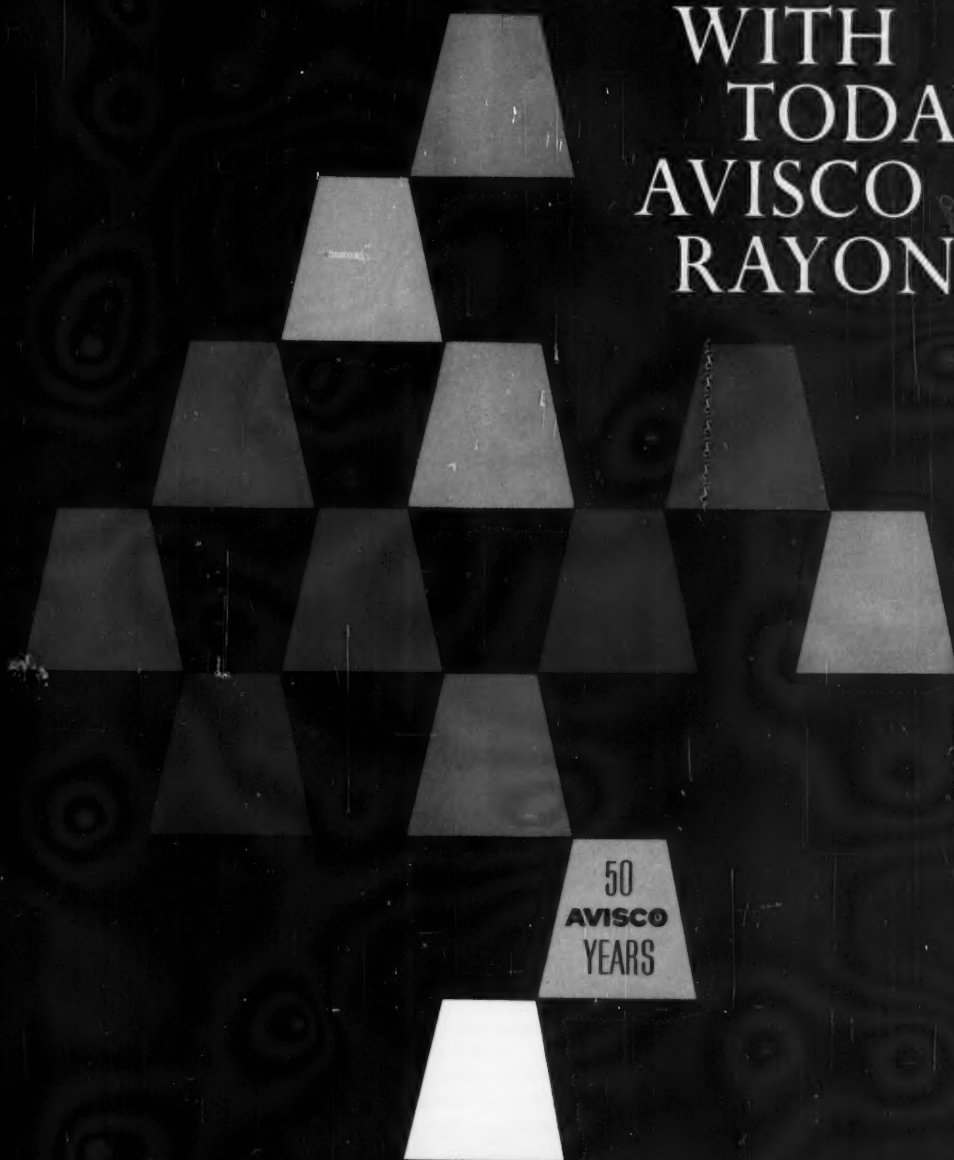
Since the sales office was set up just about two years ago, Virginia has made heartening progress in carving out for itself a distinctive and increasingly profitable place in the complex and constantly shifting world of textile marketing. President Baker and his production and management men headquartered in Swepsonville are immensely encouraged by the result of their efforts to give Virginia Mills a market identity. It has strongly bolstered their unswerving determination to keep the company alive, profitable and growing. Julian Baker, who took over as president following the death of his elder brother, Ashby, last year, expresses his plans for Virginia in this way: "We intend", he says, "to be here for a long, long time, and we are determined to keep modern and meet any competition."

The determination of Virginia Mills to keep modern is amply demonstrated by the fact that its management has spent over \$1 million since 1955 in new equipment for virtually every major department of the mill. Julian Baker, now 48, has been active in Virginia's management since 1936 when he finished a year's study of textile manufacturing at North Carolina State College School of Textiles following his graduation from the University of North Carolina. His enthusiasm for Virginia Mills and his determination that it will continue as an independent operation is shared by his associates in the mill operation. These include W. W. Lambeth, vice president in charge of production, A. D. Williams, vice president in charge of sales, John R. Nicks, treasurer, William B. Younger, general superintendent, and James R. Bussinger, superintendent.

The marketing strategy these men have worked out by putting their heads together with the New York sales-styling team of Hornstein, Smith, Steiger

(Continued on Page 77)

FIFTY
YEARS
OF
PROGRESS
WITH
TODAY'S
AVISCO
RAYONS!



TEXTILE EXCITEMENT 1910 CREATED BY AMERICAN VISCOSE COMPANY



We have lots of experience in creating consumer excitement. Way back in 1910 when the first "artificial silk" fabrics (known to you as rayons) appeared in stores, they created a sensation. They were made of fibers produced by the American Viscose Company in the first successful synthetic fiber plant established in this country. A plant that was the forerunner of the whole synthetic fiber industry in the United States.

Early rayons had that silky look, were easy to dye and found ready acceptance in the millinery, lingerie and hosiery trades.

TEXTILE EXCITEMENT 1960 CREATED BY AMERICAN VISCOSE CORPORATION



Used alone or in blends, today's Avisco rayons make possible exciting new fabrics featured in all types of apparel. Avisco rayons give fashions the hand, color, texture and performance that means volume sales.

Creators of decorator fabrics, carpeting, bedspreads have woven magic around the home with today's Avisco rayon fibers. Soft and subtle or bold and dramatic, Avisco rayons achieve perfect results. The Avisco Integrity Tag on home furnishings fabrics symbolizes performance tested fabric quality.



With its 50 years of leadership in the synthetic fiber industry, American Viscose Corporation has set the pace in creating versatile, vital new rayon fibers whose application in the apparel and home furnishings fields are growing daily. New rayon fibers are constantly being developed and perfected in our own extensive research laboratories.

EVERYONE LOOKS TO TODAY'S AVISCO RAYONS FOR NEW IDEAS!

The new American Viscose rayons are "can do" fibers. American Viscose research and fabric development have created special rayons to meet the end use requirements of a multitude of textile products. Apparel, home furnishings, industrial fabrics look better, perform more efficiently when they feature the new Avisco rayon fibers. Used alone or in blends, Avisco rayons put the *sell* in fabrics.

THIS IS THE AVISCO FAMILY OF MODIFIED RAYON FIBERS:

AVRON® (XL)

The new high-strength rayon staple fiber. Its strength makes possible the spinning of a much finer yarn. Especially popular in home furnishings field; widely used in all types of apparel.

AVRIL® (Fiber 40)

The stable rayon staple fiber that can be pre-shrunk and processed on cotton equipment. Fast absorbing, it blends beautifully with cotton and synthetics.

AVLIN® (RD 100)

A brand new multicellular rayon staple fiber that has unique characteristics contributing new firmness and bulk to fabrics.

COLORSPUN*

Solution-dyed rayon staple fiber and filament yarns for fabrics that are exceptionally washable and colorfast. Colorspun fibers and yarns have many applications for both apparel and decorator fabrics.

AVICRON®

A crimped rayon filament extensively used for tufting and weaving. Extremely resistant to lint pick-up. Leading manufacturers of bedspreads, bath mats, rugs are consistent users of Avicron.

SUPER L®

Special long-wearing smooth staple rayon created for use in carpeting. Very soil resistant, frequently blended with natural and synthetic fibers.

* T.M. American Viscose Corporation

AMERICAN VISCOSE CORPORATION

Philadelphia 3, Pennsylvania • New York 1, New York

*Makers of rayon filament and staple fiber, Tyrex tire yarn, cellophane, acetate yarns, cellulose bands & casings, plastics
Associated Companies (50% Owned): Chemstrand Corp. • Ketchikan Pulp Co. • AviSun Corp.*

Here are your ready-made SAMPLING AND TESTING PLANS for mill quality control

By Norbert Lloyd Enrick*

INSTITUTE OF TEXTILE TECHNOLOGY

Sampling plans for convenient ready use by the mill, for sampling risks of 1 and 5 per cent, are given in Tables III and IV. Using the Allowable Sampling Errors or Tolerances and the Variation Coefficients prevailing at each process, the mill can thus use these tables to develop its own sampling program for quality control, such as shown in Table V for a typical organization.

Formula for Sample Size

The formula for determining the proper sample size used in preparing Tables II to IV is as follows:

$$\text{Sample Size} = (\%V \times t / \%E)^2$$

in which, %V, and, %E, have the meanings previously given and t, is a probability factor, as shown in Table VI.

TABLE VI. PROBABILITY FACTORS
CORRESPONDING TO SAMPLING RISKS

Sampling Risk in Percent	Chance of Occurrence	Probability Factor, "t"
0.1	1 out of 1000	3.1
0.3	3 out of 1000	3.0
1.0	1 out of 100	2.6
5.0	1 out of 20	2.0
10.0	1 out of 10	1.6

Source: The Probability Factors shown here are developed from Tables of Areas under the Normal Distribution Curve, such as in N. L. Enrick, "Quality Control" Fourth Edition, 1960, The Industrial Press, New York.

As an illustration, take a mill where changes to control weight are generally made on the one-process roving frames. There are 6 frames on one yarn style. The Allowable Sampling Error, %E, is ± 1.5 , the Acceptable Sampling Risk is 0.3%, and the Coefficient of Variations, %V, is 1.73. Proceed as follows:

1. It will be noted that for the corresponding Ac-

* Since writing this article, Professor Enrick has joined the teaching staff of the Graduate School of Business Administration, University of Virginia.

Part two of a three-part series

ceptable Sampling Risk of 0.3% the probability factor "t" is 3.0, Table VI.

2. Next substitute the proper values from the example in the formula for sample size. Then:

$$\text{Sample Size required} = (1.73 \times 3.0 / 1.5)^2 = 12$$

Thus, 12 bobbins from the group of 6 frames should be tested.

3. From past experience, it has been determined that these roving frames should be checked daily. Therefore, a daily testing load consists of 12 bobbins per 6 frames or 2 bobbins from each frame. This assumes that there are no differences in draft constants between frames and that all gear changes are made simultaneously for the entire group.
4. From practical considerations, it is next decided to randomly select one bobbin from the front row and one bobbin from the back row of each frame.

It is thus shown how the statistical formula helps in determining the proper amount of testing. In addition, technical judgment enters into the decision, as demonstrated. Usually, it will be helpful to follow three basic rules:

1. Keep product variations at a feasible minimum. The lower product variation the better will be the quality and running conditions, and the less testing is needed. Means of accomplishing the lowest variations feasible have been previously discussed.
2. Over-conservative sampling risks should be avoided. The lower the risk the greater the sampling.
3. The Allowable Sampling Error should not be closer than the precision technically attainable in actual processing. Otherwise there will be over-controlling, with resultant expense in excessive gear changes and undue amount of testing.

(For Tables see following Pages)

New Cellulosic Product Announced

Avicel, a new cellulosic product developed under the research designation "Cellan 300" by American Viscose Corp., is currently undergoing commercial development with principal food and pharmaceutical companies. The new product is a highly purified form of cellulose with many unusual properties. It is said to be capable of contributing such functional properties as gel stability, body, bulk, opacity, texture and palatability to a whole range of convenience foods, as well as low-calorie food products. It also may provide a new carrier for vitamins.

Cotton Cloth Imports

J. Craig Smith, president of the National Cotton Council, on a recent television program, warned that the flood of cheaply produced textiles into this country is clouding the future of the U.S. cotton industry. He said that, in terms of raw cotton, textile imports rose from 33,000 bales to 350,000 bales from 1948 to 1959. Now, Smith said, imports are coming in at the rate of 500,000 bales a year. Cotton yarn imports are now entering this country at a rate of 15,000,000 pounds annually, compared with practically none a few years ago, he said.

TABLE III. NUMBER OF TESTS REQUIRED FOR A 1.0% SAMPLING RISK

COEFFICIENT OF VARIATION %V	ALLOWABLE SAMPLING ERROR, %E																							
	0.5	0.8	1.0	1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0	10.0	12.0	15.0	18.0	20.0	25.0	30.0	
	Number of Tests Required																							
0.5	7	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
0.6	10	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
0.7	13	5	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
0.8	17	7	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1.0	27	11	7	5	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1.2	39	15	10	7	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1.4	53	21	13	9	6	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1.6	65	27	17	12	7	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1.8	88	34	22	15	10	5	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2.0	108	42	27	19	12	7	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	
2.2	131	51	33	23	15	8	5	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	
2.4	156	61	39	27	17	10	6	4	3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	
2.6	183	71	46	32	20	11	7	5	4	3	2	2	2	1	1	1	1	1	1	1	1	1	1	
2.8	212	83	53	37	24	13	8	6	4	3	3	2	2	1	1	1	1	1	1	1	1	1	1	
3.0	243	95	61	42	27	15	10	7	5	4	3	2	2	2	1	1	1	1	1	1	1	1	1	
3.2	277	108	69	48	31	17	11	8	6	4	3	3	2	2	2	1	1	1	1	1	1	1	1	
3.4	313	122	78	54	35	20	13	9	6	5	4	3	3	2	2	1	1	1	1	1	1	1	1	
3.6	350	137	88	61	39	22	14	10	7	5	4	4	3	3	2	2	1	1	1	1	1	1	1	
3.8	390	153	98	68	43	24	16	11	8	6	5	4	3	3	2	2	1	1	1	1	1	1	1	
4.0	433	169	108	75	48	27	17	12	9	7	5	4	4	3	2	2	1	1	1	1	1	1	1	
4.2	477	186	119	83	53	30	19	13	10	7	6	5	4	3	2	2	1	1	1	1	1	1	1	
4.4	523	204	131	91	58	33	21	15	11	8	6	5	4	4	3	2	1	1	1	1	1	1	1	
4.6	572	224	143	99	64	36	23	16	12	9	7	6	5	4	3	2	1	1	1	1	1	1	1	
4.8	623	243	156	108	69	39	25	17	13	10	8	6	5	4	3	2	2	1	1	1	1	1	1	
5.0	676	264	169	117	75	42	27	19	14	11	8	7	6	5	3	3	2	2	1	1	1	1	1	
5.2	731	286	183	127	81	46	29	20	15	11	9	7	6	5	4	3	2	1	1	1	1	1	1	
5.4	788	308	197	137	88	49	32	22	16	12	10	8	7	5	4	3	2	1	1	1	1	1	1	
5.6	848	331	212	147	94	53	34	24	17	13	10	8	7	6	4	3	2	1	1	1	1	1	1	
5.8	910	355	227	158	101	57	36	25	19	14	11	9	8	6	5	4	2	2	1	1	1	1	1	
6.0	973	380	243	169	108	61	39	27	20	15	12	10	8	7	5	4	2	2	1	1	1	1	1	
7.0	1,325	518	331	230	147	83	53	37	27	21	16	13	11	9	7	5	3	2	1	1	1	1	1	
8.0	1,731	676	433	300	192	108	69	48	35	27	21	17	14	12	9	7	4	3	2	1	1	1	1	
10.0	2,704	1,056	676	469	300	169	108	75	55	42	33	27	22	19	14	11	7	5	3	2	2	1	1	
12.0	3,894	1,521	973	676	433	243	156	108	79	61	48	39	32	27	20	15	10	7	4	3	2	2	1	
15.0	6,084	2,377	1,521	1,056	675	380	243	169	124	95	75	61	50	42	31	24	15	10	7	5	4	2	2	
20.0	10,816	4,225	2,704	1,878	1,201	676	433	300	220	169	134	108	89	75	55	42	27	19	12	8	7	4	3	
25.0	16,900	6,602	4,225	2,934	1,876	1,056	676	469	345	264	209	169	139	117	86	66	42	29	19	13	11	7	5	
30.0	24,336	9,506	6,084	4,225	2,701	1,521	973	675	496	380	301	243	201	169	124	95	61	42	27	19	15	10	7	
35.0	33,124	12,939	8,281	5,750	3,677	2,070	1,325	919	676	518	409	331	273	230	169	129	82	57	37	26	21	13	9	
40.0	43,264	16,900	10,816	7,511	4,802	2,704	1,731	1,201	882	676	534	433	357	301	221	169	108	75	48	34	27	17	12	

Example: Given a %V of 4 and a %E of 5. To find Number of Tests Required, enter Table at 4% level. Proceed horizontally until column for %E of 5 is reached. This yields 4 as the Number of Tests required.

TABLE IV. NUMBER OF TESTS REQUIRED FOR A 5% SAMPLING RISK

COEFFICIENT OF VARIATION %V	ALLOWABLE SAMPLING ERROR, %E															
	0.5	0.8	1.0	1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	7.0	8.0
	Number of Tests Required															
0.5	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.6	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0.7	8	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1
0.8	10	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1
1.0	16	6	4	3	2	1	1	1	1	1	1	1	1	1	1	1
1.2	23	9	6	4	3	2	1	1	1	1	1	1	1	1	1	1
1.4	31	12	8	5	3	2	1	1	1	1	1	1	1	1	1	1
1.6	41	16	10	7	5	3	2	1	1	1	1	1	1	1	1	1
1.8	52	20	13	9	6	3	2	1	1	1	1	1	1	1	1	1
2.0	64	25	16	11	7	4	3	2	1	1	1	1	1	1	1	1
2.2	77	30	19	13	9	5	3	2	1	1	1	1	1	1	1	1
2.4	92	36	23	16	10	6	4	3	2	1	1	1	1	1	1	1
2.6	108	42	27	19	12	7	4	3	2	2	1	1	1	1	1	1
2.8	125	49	31	22	14	8	5	3	2	2	1	1	1	1	1	1
3.0	144	56	36	25	16	9	6	4	3	2	1	1	1	1	1	1
3.2	164	64	41	28	18	10	7	5	3	3	2	2	1	1	1	1
3.4	185	72	46	32	21	12	7	5	4	3	2	2	1	1	1	1
3.6	207	81	52	36	23	13	8	6	4	3	3	2	1	1	1	1
3.8	231	90	58	40	26	14	9	6	5	4	3	2	2	1	1	1
4.0	256	100	64	44	28	16	10	7	5	4	3	3	2	2	1	1
4.2	282	110	71	49	31	18	11	8	6	4	3	3	2	2	1	1
4.4	310	121	77	54	34	19	12	9	6	5	4	3	3	2	2	1
4.6	339	132	85	59	38	21	14	9	7	5	4	3	3	2	2	1
4.8	369	144	92	64	41	23	15	10	8	6	5	4	3	3	2	2
5.0	400	156	100	69	44	25	16	11	8	6	5	4	3	3	2	2
5.2	433	169	108	75	48	27	17	12	9	7	5	4	4	3	3	2
5.4	467	182	117	81	52	29	19	13	10	7	6	5	4	4	3	2
5.6	502	196	125	87	56	31	20	14	10	8	6	5	4	4	3	2
5.8	538	210	135	93	60	34	22	15	11	8	7	5	4	4	3	2
6.0	576	225	144	100	64	36	23	16	12	9	7	6	5	4	3	2
7.0	784	306	196	136	87	49	31	22	16	12	10	8	6	5	4	3
8.0	1,024	399	256	178	114	64	41	29	21	16	13	10	8	7	5	4
10.0	1,600	624	400	278	178	100	64	44	33	25	20	16	13	11	8	6
12.0	2,304	899	576	400	256	144	92	64	47	36	28	23	19	16	12	9
15.0	3,600	1,404	900	625	400	225	144	99	73	56	44	36	30	25	18	14
20.0	6,400	2,496	1,600	1,110	710	400	256	178	131	100	79	64	53	44	33	25
25.0	10,000	3,900	2,500	1,735	1,110	625	400	278	204	156	124	100	83	70	51	39
30.0	14,400	5,616	3,600	2,498	1,598	900	576	400	294	225	178	144	119	100	73	56
35.0	19,600	7,644	4,900	3,401	2,176	1,225	784	544	400	306	242	196	162	136	100	76
40.0	25,600	9,984	6,400	4,442	2,842	1,600	1,024	711	522	400	316	256	211	178	131	100

Example: Given a %V of 4 and a %E of 2. To find Number of Tests required, enter Table at 4% level. Proceed horizontally until column for %E of 2 is reached. This yields 16 as the Number of Tests required.

TABLE V

TYPICAL LABORATORY TESTING PROGRAM											
Test and Purpose		Opening Line	4 Pickers	120 Cards	12 Breakers	16 Finishers	14 Roving	160 Spinning	Yarn Prep.	1260 Looms	Cloth Room
Routine Sizing Control yarn and cloth weights and variation	Freq.		Weekly	Weekly	Weekly	Daily	Daily	Daily	--	--	Weekly
	Number		8 Laps	10 Cards	1 Del./Fr.	1 Del./Fr.	7 Frs.	4 Frs.	--	--	All Styles
	Hrs/Wk		0.5	0.5	1.0	6.0	6.0	3.0	--	--	2.0
Speeds Maintain production and quality standards	Freq.	5 Wks	5 Wks.	Weekly	5 Wks.	5 Wks.	5 Wks.	5 Wks.	5 Wks.	Weekly	5 Wks.
	Number	1 line	4 Pickers	10 Cards	12 Frs.	16 Frs.	14	160	10	126	Folders
	Hrs/Wk	0.1	0.1	0.5	0.1	0.1	0.1	0.5	0.2	0.5	0.2
Roll Settings Assure good drafting	Freq.				20 Wks.	10 Wks.	10 Wks.	10 Wks.			
	Number				72 Del.	80 Del.	14 Frs.	160 Frs.			
	Hrs/Wk				0.2	0.5	0.2	1.0			
Evenness (ITT - Brush) Assure uniform yarn	Freq.		Weekly	Weekly	Weekly	Weekly	Weekly	Weekly			
	Number		4 Laps	10 Cards	3 Frs.	3 Frs.	3 Frs.	12 Frs.			
	Hrs/Wk		2.0	1.5	0.5	0.5	0.5	2.0			
Roving Traverse Minimize wear on rolls	Freq.						5 Wks.	Weekly			
	Number						7 Frs.	12 Frs.			
	Hrs/Wk						0.1	1.0			
Idle Deliveries Maintain production efficiency	Freq.				Weekly	Weekly	Weekly	2 Wks.			
	Number				72 Del.	80 Del.	1764 Spdl.	47,232			
	Hrs/Wk				0.1	0.1	0.5	2.0			
Feeding Percentage and Delivery Rate	Freq.	5 Weeks	5 Weeks								
	Number	1 Line	4								
	Hrs/Wk	0.2	0.2								
Settings Check (Card Settings and Spooler Snick Plate)	Freq.			Weekly					5 Weeks		
	Number			1 Card					10/Spool.		
	Hrs/Wk			0.5					0.2		
Flat Strips, Nap Count and Trumpet Size	Freq.			5 Weeks							
	Number			10 Cards							
	Hrs/Wk			1.0							
Spoon and Trumpet Knock-off Check	Freq.				2 Weeks	2 Weeks					
	Number				72 Del.	80 Del.					
	Hrs/Wk				1.0	1.0					
Ply Twist	Freq.								5 Weeks		
	Number								1 Twister		
	Hrs/Wk								0.1		
Slasher Temperature, Stretch, Size Pick-up Analysis and Moisture Regain	Freq.								Weekly		
	Number								1 Slasher		
	Hrs/Wk								5.0		
Cloth Analysis and Strength	Freq.										Weekly
	Number										1 Style
	Hrs/Wk										1.0
Check of Yardage Cloaks, fold length and width	Freq.										Weekly
	Number										2 Folders
	Hrs/Wk										1.0
Quill Check	Freq.									Weekly	
	Number									126 Looms	
	Hrs/Wk									1.0	
Finished Grading Check	Freq.										Weekly
	Number										2 Graders
	Hrs/Wk										2.0
Relative Humidity Check	Freq.		Weekly	Weekly	Weekly	Weekly	Weekly	Weekly		Weekly	Weekly
	Number										
	Hrs/Wk		0.1	0.2	0.1	0.1	0.1	0.5		1.0	0.1

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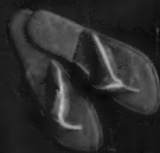
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... and no C & K Loom part is designed, except to fit in most efficiently as part of the whole ... only the maker of the whole loom has this point of view when designing and producing a loom part ... it follows that a replacement part had best come from the loom maker, who has his own business at stake in the year after year efficient performance of his product.

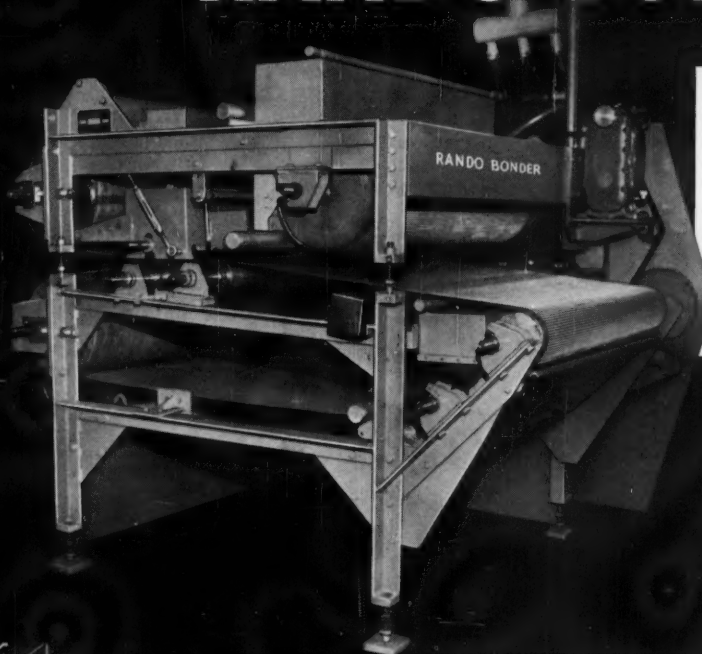
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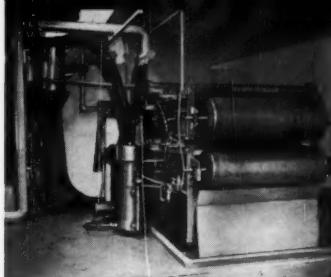
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... and no C & K Loom part is designed, except to fit in most efficiently as part of the whole ... only the maker of the whole loom has this point of view when designing and producing a loom part ... it follows that a replacement part had best come from the loom maker, who has his own business at stake in the year after year efficient performance of his product.

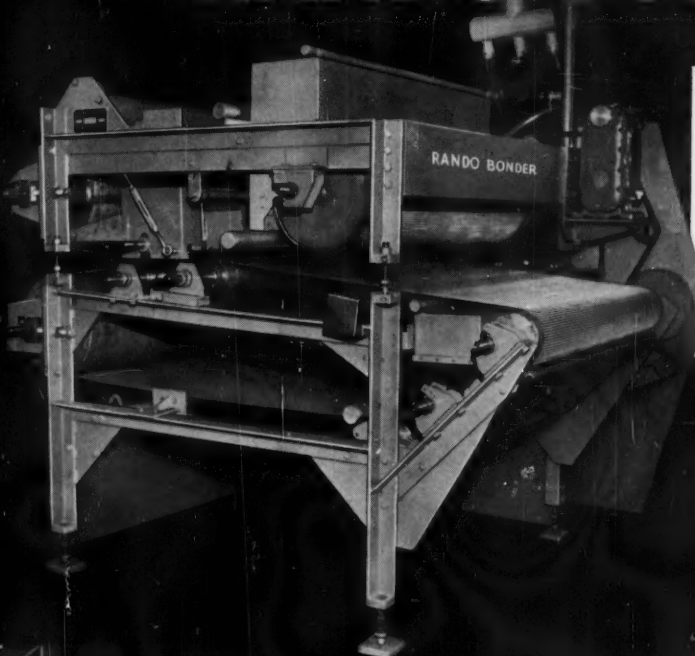
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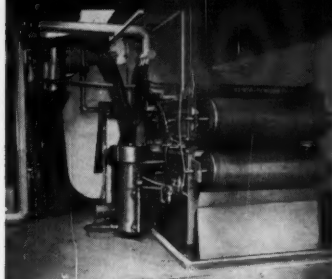
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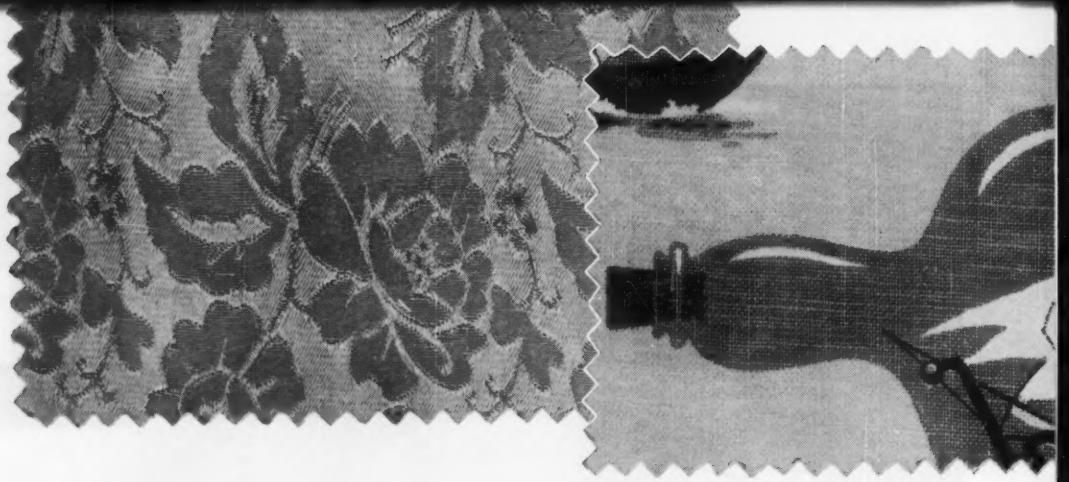
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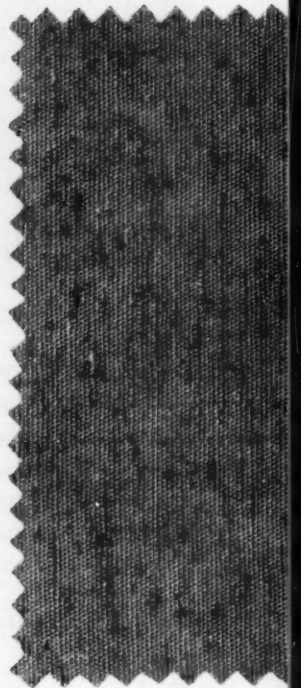
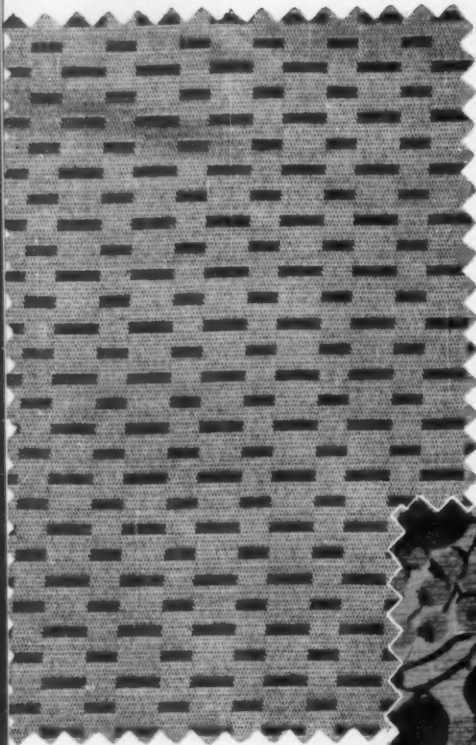
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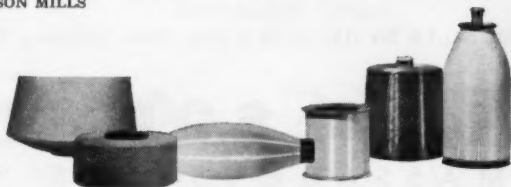
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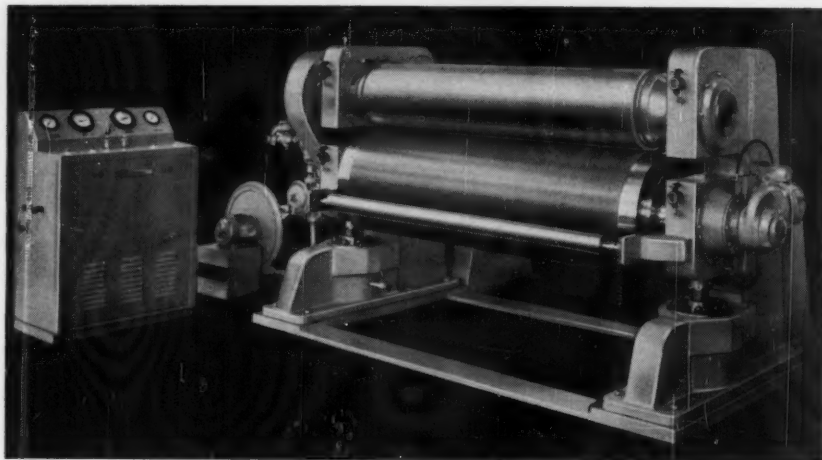
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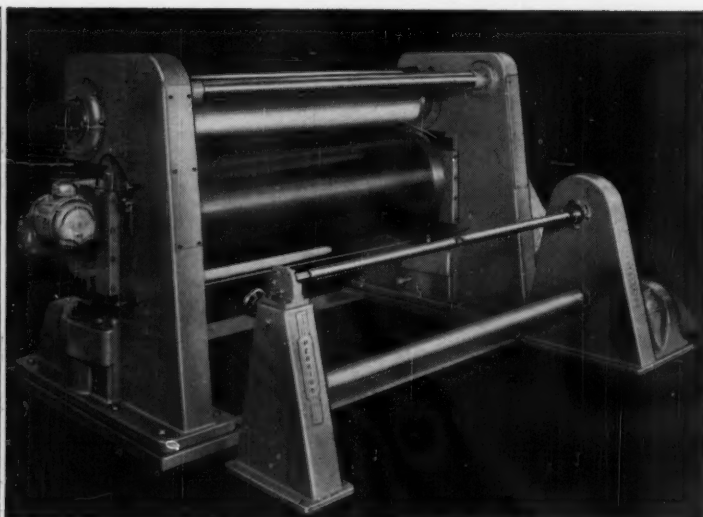
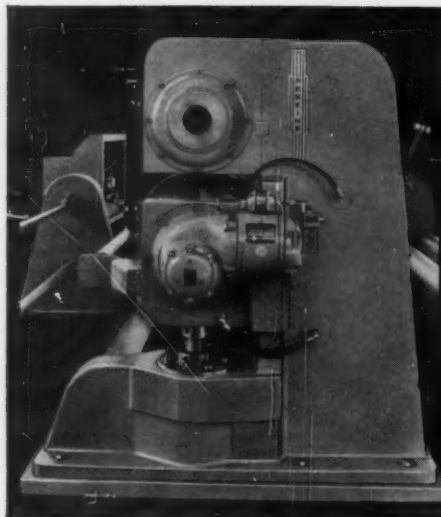
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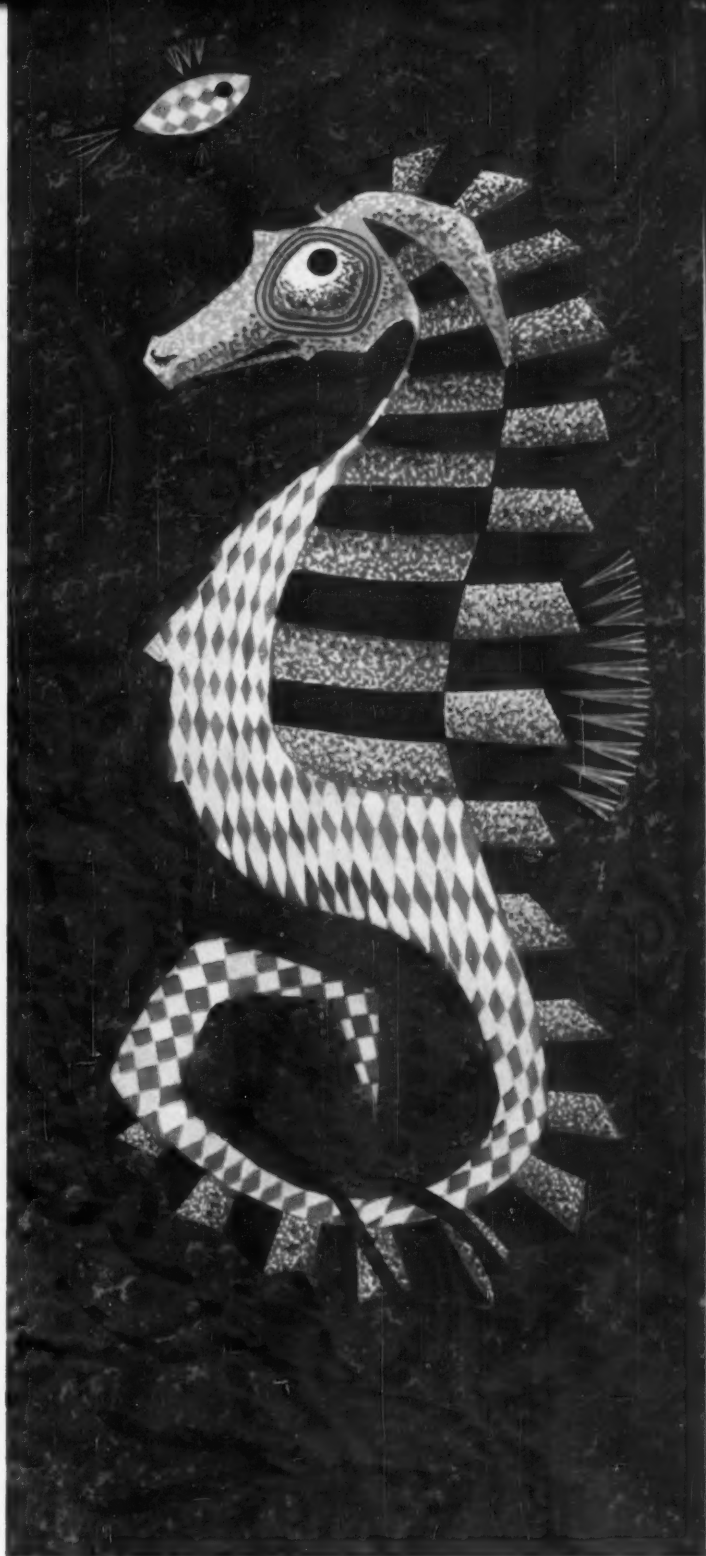
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S A N D O Z
THINKS AHEAD WITH TEXTILES 

Copyrighting your textile designs —

A workable defense against piracy?

By V. Alexander Scher

THE PIRACY of designs of textile fabrics and dresses has been the plague of the textile industry for many years. The custom of copying novel attractive design creations is so widespread that many people in the industry accept it as an unavoidable fact of life. There can be no doubt that, in principle, the copying or pirating of designs is as evil as stealing and belongs in the same category, particularly since the Constitution of the United States specifically reserves property rights to "authors and inventors". Obviously, the originator of a new design is an author to the same extent as a painter, a poet or a novelist.

From time to time pioneers in the textile industry not only recognized piracy as being an evil, but also made various attempts to stop it. Some of these attempts included the creation of a voluntary code of ethics to which members would subscribe and which provided a central office for the filing of new designs, so that members would be acquainted with designs, the copying of which they must avoid. Unfortunately, design pirates did not subscribe to this code in sufficient numbers.

In 1929 Cheney Brothers attempted to stop the copying of one of their popular designs for silks by bringing a lawsuit in a Federal Court, which was based on the theory that they had a common law right in their design and that the copyist was guilty of unfair competition. On appeal, Judge L. Hand, one of the most respected Federal judges of modern times, disagreed with this theory. He stated that designs can be protected only by design patents and copyrights and if these are not sufficient, then it is up to Congress to provide new laws for their protection.

Faults of Patents

It is true that design patents have been used for many years and are still being used extensively for the protection of designs of textile fabrics and plastic materials, dress designs and similar items. However, design patent applications are subject to examination as to novelty in the United States Patent Office and this examination, despite efforts on the part of the Patent Office to speed up its work, still consumes at least six months or more.

During this examination period, the owner of the design patent application cannot undertake anything to stop the infringer. Yet the effective life time of an original design is often quite short. Another drawback is that after a design patent has been granted and its owner has brought a lawsuit against a copyist in a Federal Court, the copyist will invariably set up as defense that the design patent is invalid and was granted as the result of a mistake made by the

Patent Office, since the same or similar designs were in existence many years ago.

While this defense may be a sham and may be eventually rejected by the court, the owner of the design cannot, as a rule, stop the infringer from copying the design or secure a preliminary injunction while the lawsuit is pending. Since our Federal Courts are behind in their work, the design owner might have lost all interest in the design by the time he gets a favorable decision. Also, the monetary recovery he may receive may be insufficient to cover the losses which he suffered during the period of the infringement.

The remaining legal protection to design owners is that of our copyright laws. The advantage of a copyright over a design patent is that a copyright is granted without a preliminary examination as to novelty, usually a few days after filing. The procedure is extremely simple, it requires merely the filing of a sample, a simple form and a fee of \$4. Furthermore, the Copyright Law does not have such stringent requirements as to originality and novelty as are demanded of design patents. However, the Copyright Law protects only against copying; it is not effective against someone who can prove that he originated a similar creation on his own.

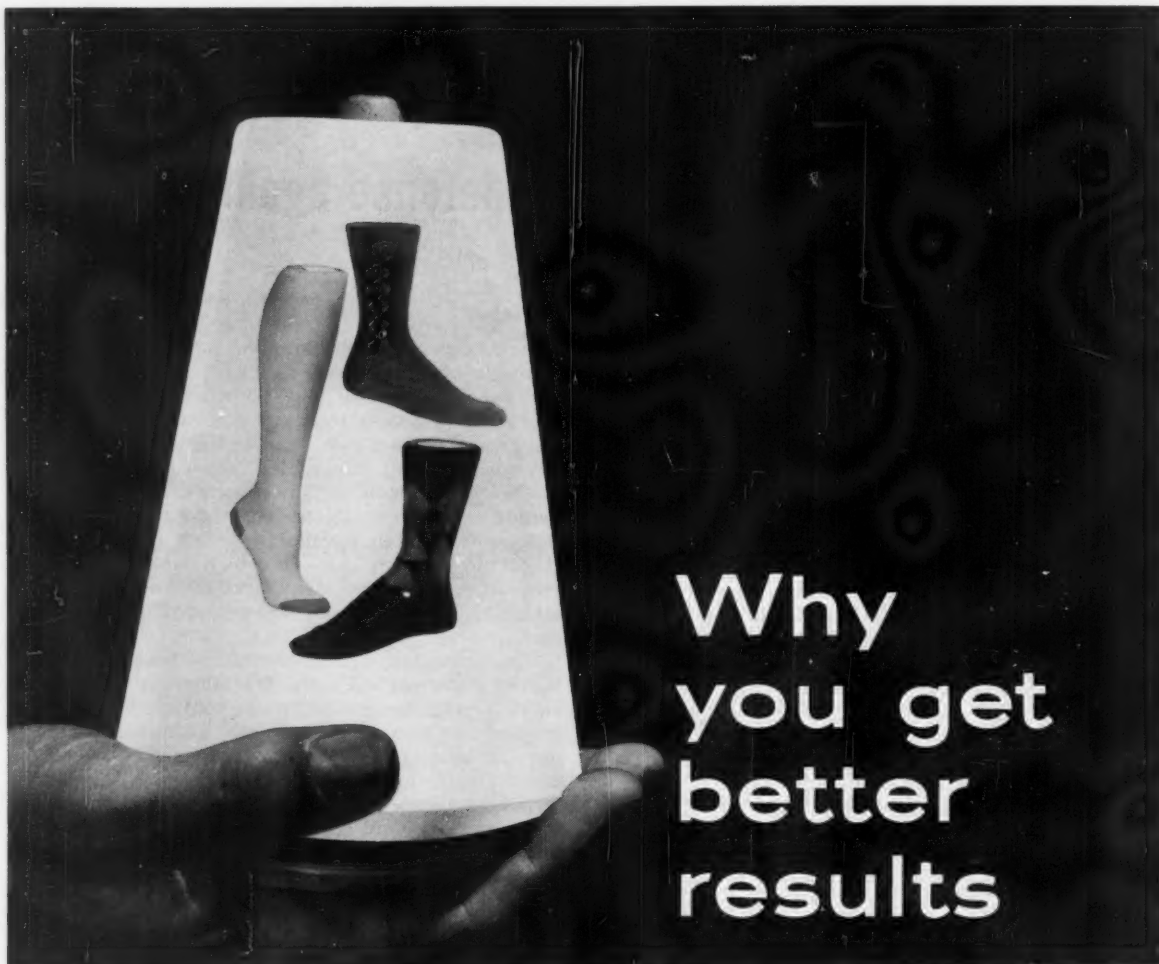
Copyrighting Now Permitted

For some time the Copyright Office did not register textile designs, considering them outside the scope of protection provided by the laws. Dress designs are still not covered by copyright protection. However, recently the Copyright Office began to register textile fabric designs. The pioneer which invoked the copyright laws to protect its designs was Peter Pan Fabrics, Inc. It brought within a short time three lawsuits in the District Court in New York City for infringement of its so called Bysantium design which was copyrighted on July 9, 1958, and in all lawsuits it asked for a preliminary injunction, namely, for a court order to stop the infringers from continuing to copy the design while the action was pending. The defendants set up all kinds of defenses, including that of attacking the constitutionality of the Copyright Law.

One of the most interesting defenses was that the plaintiff did not comply with the requirements of the Copyright Law which provides that every copyrighted item must be provided with the copyright notice, in this case "Copyright 1958 by Peter Pan Fabrics, Inc." This notice did appear on the edge of the fabric at every repeat thereof. However, whenever the fabric was made into a dress, the edge was cut off, since obviously no lady would wear a dress provided with a visible copyright notice for fear of being subjected to

The author, an attorney of long experience in patent and trademark law, has written a number of books on this subject. He is senior partner in the law firm of Richards & Geier, New York City.

(Continued on Page 44)



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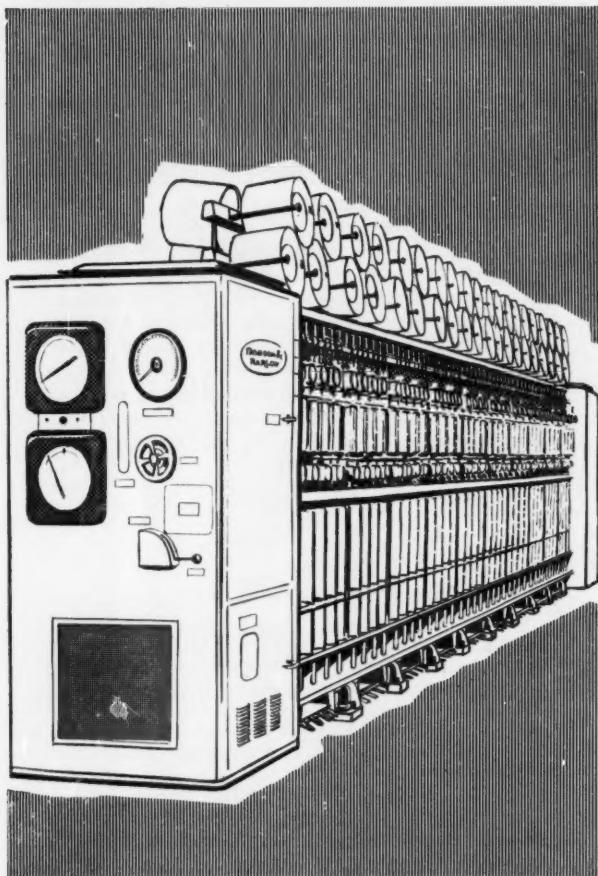
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Copyrighting Designs

(Continued from Page 41)

ridicule. Both the District Court and the Court of Appeals rejected this defense, stating that the law does not demand the impossible and that the copyright notice on the selvage was sufficient.

Thus these cases show the way for adequate protection against piracy, particularly since copyright registration may be secured in a matter of days and since a motion for a preliminary injunction may be made shortly after the law suit is instituted.

In a recent case decided on May 27, 1960, the Court of Appeals again sustained an order for a preliminary injunction despite arguments that the copyright notice was not properly applied. On June 21, 1960, Peter Pan Fabrics, Inc. won another order for a preliminary injunction for infringement of its copyright dated

December 15, 1959 on its original fabric design "Flower Plaid". It is important, however, that the design be a novel creation. In another recent case the Court of Appeals overruled the order of the District Court granting a preliminary injunction, on the ground that the plaintiff merely changed an old design by making it look three-dimensional and that the defendant did not copy these changes.

It is quite possible that these decisions have sounded the death knell for pirates of textile fabric designs. It is to be hoped that as time goes on, the procedure of securing a copyright and of asking the courts to protect it, will be simplified and accelerated, so that it will be available to every owner of an original textile design.

Readers who wish to know more about methods of design protection for fabrics through copyright are invited to write the author care of the editors.

Swiss Shuttleless Looms

First deliveries to the United States of 400 shuttleless looms manufactured by Sulzer Bros., Winterthur, Switzerland, are scheduled to be made in the latter part of this year. The looms, all 85-inch four-color worsted weaving machines, will be shipped to Deering Milliken & Co., Beacon Manufacturing Co., J. P. Stevens & Co., Inc., and Burlington Mills, according to Max Steiner, director and manager of Sulzer's textile machinery department.

With 3,800 Sulzer weaving machines now operating throughout the world, Steiner said the Swiss manufacturer is starting to supply the shuttleless looms to the U.S. textile industry. Engineering of the looms was started in 1930, and it wasn't until 1952-54 that they were actually being manufactured. Sulzer now turns out up to 900 of the machines a year. The firm, Steiner said, has a backlog of 6,000 orders.

The \$5.2 million in orders from the four U.S. textile firms will be completed over a 2½-year period. Warner & Swasey Co., of Cleveland, Ohio, which builds under license the Sulzer plain single-color loom and which it has been marketing domestically for years, will not participate in filling the American orders. Thomas L. Stilwell, W&S sales manager for the firm's textile machinery division, said Warner & Swasey has an option to build the new four-color version if demands should arise from other U.S. mills.

Army Uniform Fabrics

A polyester-wool blend was the most satisfactory of nine tropical blend fabrics tested as a possible alternate for tropical worsted 100% wool in military summer uniforms, according to an Army report released to industry through the Business and Defense Services Administration, U.S. Department of Commerce, Washington 25, D. C. Also released was an Air Force report on the development of a colorfast dye formula for use in making service overcoats.

The two reports are: "An Evaluation of New Fiber Blends in Army Summer Uniform Fabrics," 73 pages, \$2 per copy, Order No. PB-161-331, and "Development of Shade Standard and Tolerances for USAF Blue 85 Service Overcoat," 67 pages, \$1.75 per copy, Order No. PB-161-684. Readers interested in obtaining these reports should write directly to the Dept. of Commerce.

Criticize Government Action

The American Cotton Manufacturers Institute has issued a statement criticizing the Inter-Agency Textile Committee of the U.S. Department of Commerce for its report rejecting recommendations for textile import quotas made more than a year ago by a special Senate committee. J. M. Cheatham, president-elect of the ACMI, called the Government committee action "shocking."

The executive committee of the National Association of Wool Manufacturers also expressed deep disappointment with the Inter-Agency Textile Committee report.

The AMCI, meanwhile, had urged President Eisenhower to sign into law a bill designed to close a tariff law loophole for cotton cloth imports. The bill (HR 12659) also had the support of the Departments of Commerce, Treasury and Labor.

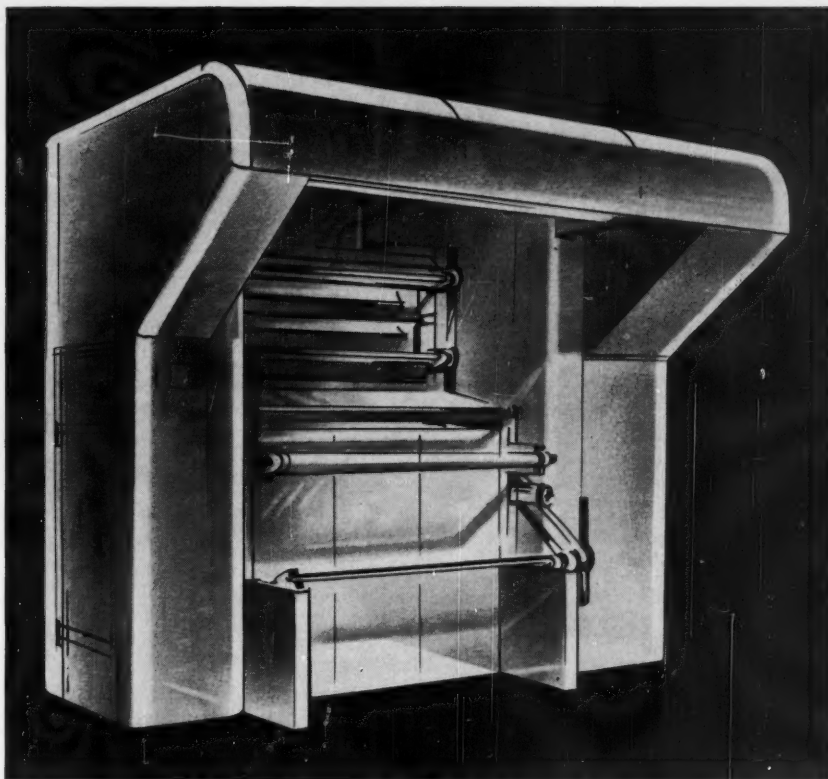
To Buy Foreign Equipment

Joanna Cotton Mills, Joanna, S. C., is negotiating to buy 40,000 Japanese spindles to expand the firm's fine combed goods output. Currently, Joanna is testing Japanese high draft, sliver-to-yarn cotton spinning equipment of O-M Spinning Machine Co., Ltd., in Osaka, Japan.

Meanwhile, the Long Shoals Cotton Mills, Inc., in Lincolnton, N. C., is operating with all new spinning equipment that was manufactured in Japan. D. H. Mauney, Jr., owner and manager of Long Shoals, said the operation was set up in the old Massapoag Mill in Lincolnton while the Long Shoals building that burned April 6, 1959, is being rebuilt and equipped. Not all the "bugs" have been ironed out yet, Mauney said. He believes you can't really do any good with Japanese spinning unless the entire mill is converted to it.

American firms also are reported buying Swiss-made equipment. Deering Milliken & Co., Inc., however, would not confirm that it had purchased 30,000 spindles for cotton spinning from Joh. Jacob Rieter & Co., Winterthur, Switzerland. Indications are the equipment, if purchased, would be installed in the Gaffney Mfg. Co. facilities. It is known that Deering Milliken has purchased other Rieter equipment over the past 5 or 6 years.

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PRIZE MEN ALL—Shown above at the AATCC's annual convention are past winners of the Olney Medal. Left to right they are W. J. Hamburger, E. I. Valko, H. E. Mill-

son, P. J. Wood, Milton Harris, M. A. Dahlen, W. D. Appel, Werner von Bergen

AATCC convention report

Dyers' meeting studies progress in coloring manmade fibers, fabrics

TO PHILADELPHIA'S SHERATON HOTEL last month the annual national convention of the American Association of Textile Chemists and Colorists brought some 1,800 members and guests to participate in the three-day conference and learn about the newest developments in textile wet processing.

As in the past, the dominant events of the meeting were the series of technical programs marked by the presentation of papers on a wide range of subjects connected with dyeing and finishing. Between the technical sessions, those attending the convention were able to see on display in colorful booths exhibits offering a variety of products and services to the wet processing divisions of textile manufacturing.

The technical programs were devoted, for the most part, to exploring the wet processing aspects of the convention's basic theme: "New Fibers, New Blends New Fabrics."

The opening session on Thursday, Oct. 6, had for its chairman, Burt F. Faris, the Du Pont Co. The session opened with a panel meeting devoted to the dyeing and finishing of the new cellulosic fibers with Walter J. Hamburger, Fabric Research Laboratories,

serving as moderator. The following are summaries of the papers presented during this session.

Dyeing and Finishing Enka Fiber 500

By L. R. Graybeal,
American Enka Corp.

ENKA FIBER 500 IS A REGENERATED cellulosic fiber chemically like ordinary rayon but having an internal physical structure that gives it higher wet modulus and lower elongation. This results in low progressive shrinkage after mechanical compression, as in cotton. The behavior of rayon is preserved with respect to dyeing characteristics and processing into fabric.

Resin requirements for a given stability and crease recovery are similar to those of cotton. Unlike cotton, however, the fabric loses little or no strength in resin treatment. End uses for which Fiber 500 fabrics appear suitable include women's blouses and dresses, men's sports shirts and T-shirts, suiting blends with polyester and acrylic fibers, and draperies.

(Continued on Page 48)

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AATCC Convention

(Continued from Page 46)

In general the dyeing properties are similar to those of regular rayon, but the relationship varies to some extent from one dye to another. For example, some vats, directs, and sulfurs have slightly greater affinity for Fiber 500 than for regular rayon; others in each class have slightly less. The only significant difference found so far between the two fibers with respect to lightfastness, washfastness, and crockfastness is that the washfastness of direct dyes on Fiber 500 is somewhat better.

The resin requirements of Fiber 500 are about two-third those of regular rayon, or only slightly more than for cotton, for a given level of crease recovery, stability, and easy care properties. This seems to be associated with its higher modulus and greater crystallinity. However, it exhibits rayon's favorable characteristic of retaining most, if not all, of its dry strength and gaining wet strength when resin treated, whereas cotton loses sharply. The net result usually is for Fiber 500 goods to be stronger than cotton in both the dry and the wet state, after resin treatment.

At a good level of dry crease recovery, for example 270°, Stoll flex abrasion resistance and strength of resin finishes fabrics made of Fiber 500 approach those of regular rayon. Wash-wear ratings are noticeably better, however, apparently because of the higher ratio of wet to dry crease recovery.

Dyeing New American Viscose Fibers

By I. H. Welch,
American Viscose Corp.

Avron

AVRON OR XL, AS IT IS KNOWN in fiber form, is a new high strength rayon fiber. Avron is 30% stronger dry and 50% stronger wet than regular rayon. The abrasion resistance of Avron is approximately double that of regular rayon. The cross section of Avron resembles that of a kidney bean with a relatively regular surface. The fiber has a semi-dull appearance resulting from the gas voids within its surface.

Fabrics of 100% Avron rayon or blends of Avron with the synthetics require no special preparation over that normally used for regular rayon. However, fabrics made from combinations of cotton and Avron rayon must be processed in a different manner than cotton. They may be processed in an open kier or in a continuous J unit. However, caustic should be kept to a minimum. Such fabrics should not be processed in a pressure kier; neither should they be mercerized. Mercerization with caustic soda reduces the strength of Avron rayon approximately 50% and stiffens the fiber considerably. Mercerization can be accomplished satisfactorily, however, through the use of potassium hydroxide.

All classes of dyes for cellulosic fibers may be used to produce a full range of shades on Avron rayon fabrics. Dyeing is done on conventional dyeing equipment by the same procedures used for regular rayon. As with any other high tenacity type fiber, Avron rayon tends to take dyestuff less rapidly than regular rayon. Avron rayon dyes similarly to unmercerized cotton and thus somewhat lighter and duller than rayon. In the dyeing of dark shades with direct dyestuffs, the use of additional quantities of salt has proven beneficial in achieving a full depth of shade.

Although visually, Avron rayon appears to be lighter in depth than comparably dyed regular rayon, dyebath transmission studies have shown that total exhaustion of the Avron rayon bath is normally 5 to 10% greater than that of regular rayon. This apparent depth difference is attributed to Avron rayon cross-section and to the distribution of dye within the fiber.

Inasmuch as Avron rayon is a strong, high elongation fiber, it is more affected by over-stretching during processing than regular rayon. The same conditions of stretch or strain when applied to a regular viscose fabric might break or tear it, while a fabric made from Avron rayon would only be elongated. This elongation, or stretch, will result in fabric shrinkage if the fabric is not properly relaxed at final drying.

Fabrics made entirely of Avron rayon or blends of Avron with other fibers must be resinated or chemically treated to obtain dimensional stability. Avron rayon accepts and responds to resination much the same as regular rayon. Avron rayon's higher initial strength provides better tensile strength, tear strength, and flex abrasion after resin treatment than other rayons or cotton.

Avril

Avril or Fiber 40, as it is known in fiber form, is a new high wet modulus fiber. Its inherent property of low elongation both wet and dry make possible rayon fabrics which can be mechanically stabilized by compressive shrinkage techniques. Avril has a cross sectional swelling of 55% compared with regular rayon at approximately 100%. It also has greater resistance to caustic soda which permits mercerization when desired such as in blends with cotton.

Avril's dry strength is about 10% higher than ordinary rayon; its wet strength is approximately 30% greater. Avril fabrics or Avril blended fabrics require no special preparation and can be processed with greater wet tension than regular rayon.

Avril rayon can be dyed with all classes of dyes normally applied to cellulosic fibers by commonly used techniques. Direct dyeing characteristics are different from regular rayon with the rate of exhaustion being slightly slower and shades somewhat duller in appearance. Comparative dyeings place direct dyes on Avril rayon into three classes with respect to regular rayon. Group I includes those dyes which dye Avril slightly darker, Group II includes those dyes which dye Avril rayon and regular rayon about the same depth, and Group III includes those dyes which dye Avril rayon lighter. All major dye vendors have been supplied Avril fabric for evaluation of their dyestuffs and it is suggested that they be consulted for information on their respective products.

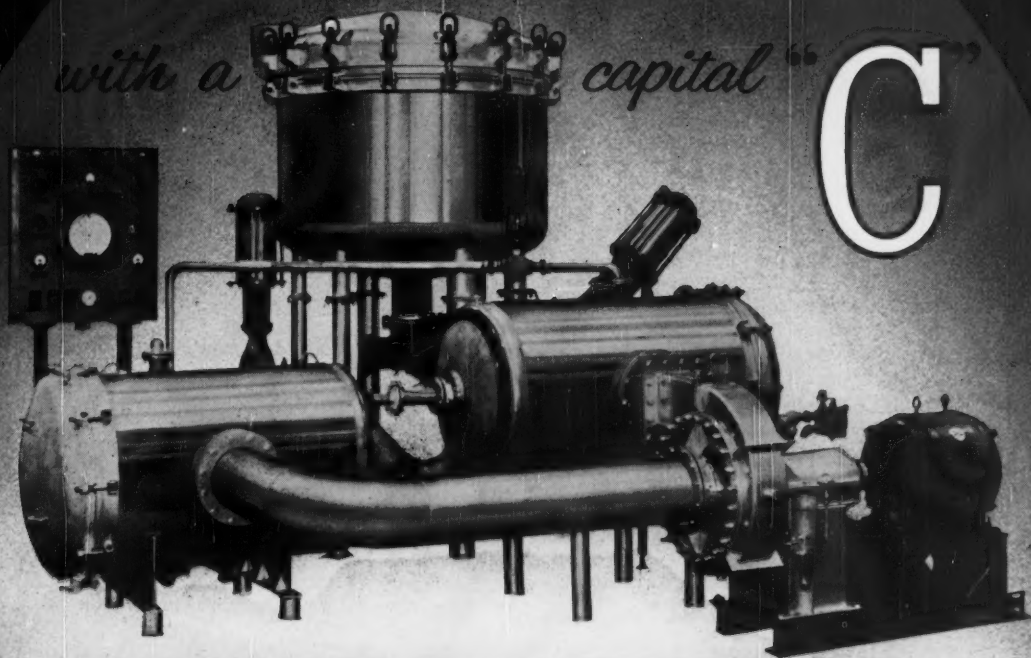
It is suggested that Avril rayon be dyed as close to the boil as possible and that in dark shades additional salt may be necessary to promote exhaustion. The high initial wet modulus, the low extensibility and Avril's greater resistance to caustic soda make possible the application of vat dyes by continuous processes.

We are presently making a study of package dyeing of Avril rayon, but at this time are not ready to report on it. It is expected, of course, that the dyeing of finer count yarns as compared to regular rayon will be possible due to the lower swelling of the fiber. Fabrics made from 100% Avril rayon or blends

(Continued on Page 50)

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AATCC Convention

(Continued from Page 48)

of Avril rayon with cotton or polyesters can be made dimensionally stable through mechanical compressive shrinkage techniques.

Avlin

Avlin rayon is a multi-cellular rayon fiber with unique properties found in no other rayon staple. When wet with water and dried Avlin rayon fibers will bond firmly to themselves as to other cellulose. Avlin has a broad flat cross section which, along with its unique bonding properties, provide a firm linen-like hand.

Avlin is thought of more as a blending fiber than for use in 100% fabrics. From 10% to 30% of Avlin blended with other cellulose, acrylics or polyesters seem to show the most promise.

Avlin rayon can be dyed on the same equipment used for dyeing regular rayon. No modifications are necessary. Dyestuff exhaustion on Avlin rayon is quite similar to regular rayon. However, the depth of shade obtained may be somewhat different. Dye formulations established for use on regular rayon should not be used on Avlin rayon without first making a sample dyeing since some adjustments may be necessary. In general, Avlin rayon tends to dye somewhat lighter than regular rayon.

The finishing of Avlin rayon parallels the finishing of regular rayon. Fabrics made entirely of Avlin rayon or blends of it with other fibers require chemical treatments to obtain dimensional stability. If crease resistance is desired, it is necessary to use suitable resins. The swelling of Avlin rayon is greater than that of regular rayon and reduced concentrations of resin should be used.

Dyeing and Finishing of Several New Regenerated Cellulosic Fibers

By R. S. Kenyon,
Courtaulds (Alabama) Inc.

CONTINUING FIBER RESEARCH on the part of Courtaulds has led to development of several new cellulosic fibers for the textile and allied industries. Most recently we have introduced the family of cross-linked staples, Corval and Topel, along with the high wet modulus fiber, Moynel.

Cross-Linked Staple

In general, it may be stated that the family of cross-linked fibers may be prepared and dyed as regular rayon with only slight modifications. Mercerization, however, is possible with newer members of this family.

Fabrics made from these fibers are relatively staple, requiring little resin for complete stability in the 100% form. In blends with the newer synthetics up to 50% they do not require resination for stability or high crease angles. Excellent wash and wear fabrics have been prepared in the pure finished state.

Moynel

Moynel is being prepared, dyed, and finished on conventional cotton equipment including mercerization and sanforization. It requires approximately the same level of resin solids as cotton to achieve stability and high crease angles without the normal loss in tensile strength associated with cotton. In blends with

carded cotton the resultant fabrics have a combed cotton appearance.

Dyeing and Finishing Zantrel Polynosic Staple Fiber

By C. E. Coke,
Hartford Fibers Co.

ZANTREL POLYNOSIC RAYON FIBER has a stable and homogeneous microfibrillar structure similar to that of the natural cellulosic fibers such as cotton and flax. In Zantrel the cellulose molecules forming the structural elements or fibrils are closely and uniformly arranged with strong chemical bonds between them. This is in contrast with ordinary rayon in which the fiber is built up from irregular bundles of cellulose molecules which are randomly arranged and which therefore have fewer and weaker chemical bonds.

These differences in chain length and in structure are responsible for the differences in physical, chemical and performance characteristics between Zantrel and the natural cellulosic fibers on one hand, and ordinary rayon on the other. The inherent dimensional stability of fabrics made with Zantrel is attributable to its high wet modulus, its relatively low swelling, and its excellent wet elastic recovery.

The dyeing of 100% Zantrel and Zantrel blend fabrics requires no specialized techniques nor equipment. In general, Zantrel can be dyed as for cotton, and a Zantrel blend as for the corresponding cotton blend. However, it is necessary to first match for shade in the laboratory since some dyes give a slightly lighter shade on Zantrel than on cotton while some others give a slightly darker shade. Nevertheless, a full range of solid shades can be produced without difficulty on Zantrel/cotton intimate blends and ortho mixtures.

With regard to dyes, Zantrel has excellent affinity for all classes of dyes normally used for dyeing or printing cellulosic fibers. Practical experience has shown that light-fastness and wash-fastness of these dyes on Zantrel is equal to that obtained on cotton. Highly satisfactory results have been obtained in respect to penetration and levelness of dyeing with intimate blends of Zantrel and carded cotton; the presence of Zantrel reduces streakiness.

The morning session on Oct. 6, was also devoted to a number of other papers on various aspects of dyeing and finishing manmade fibers. The following is a summary of these papers.

Construction Limits of Fabrics Containing Creslan Acrylic Fibers

By H. C. Haller,
American Cyanamid Corp.,
J. F. Bogdan and H. K. C. Woo,
North Carolina State College

TODAY THERE ARE AVAILABLE so many new fibers with so widely different physical properties that the most ambitious fabric designer cannot gain adequate knowledge of their behavior by attending the time-honored School of Experience, alone. Fabric construction limits, the maximum combination of ends and picks of given yarns, which have been established for the natural fibers, no longer apply when yarns spun from fibers with different specific gravities are used.

(Continued on Page 52)

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RESYN 3600 is a water dispersed polyvinylidene chloride that promises a revolution in protective coatings and finishes. For the first time, it combines exceptional barrier properties with simple low cost application by sizing, padding, coating or spraying. It offers important new advantages:

MOISTURE—Moisture vapor transmission is $2\frac{1}{2}$ to 5 times lower than that of polyethylene. **ODORS**—Resistance to transmission of common gases 1000-2000 times greater than polyethylene. **CHEMICALS**—Almost complete non-reactivity to

concentrated acids, solvents, alkalis and other corrosive materials. Grease and oil penetration is nil. Fire retardancy is excellent.

RESYN 3600 is suggested for industrial fabrics, work clothing fabrics, denims, filter clothes, military fabrics, awnings and tarpaulins, etc. It is also recommended as a binder for non-woven fabrics.

Experimental lots of **RESYN 3600** are now available. A 14 million lb. plant will be on stream this fall. Write for information.

National
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NATIONAL STARCH and CHEMICAL CORPORATION

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NOVEMBER, 1960

51

AATCC Convention

(Continued from Page 50)

The ideas and plans of the fabric designer are limited by the techniques and economics of production; he must be sufficiently familiar with these to avoid impossible, unnecessarily difficult, or costly constructions. Trial and error methods have produced the data necessary for intelligent fabric designing, but experience is Time, a commodity in short supply in today's commerce, and made expensive by the pressures of competition.

Empirical traditions are not to be scorned, but alone they form a poor basis for progress into new fields with unfamiliar materials, nor do they suffice for the modern methods of production. What is needed is a universal system of textile technology which reduces all fabrics to the bare parameters which are essential for their description and prediction.

Appreciating this need and the dilemma of the fabric designer, American Cyanamid Company sponsored a fabric engineering research project at the Textile Research Center, North Carolina State College. Its purpose was to develop a simple general description of the basic forms of textile materials in idealized geometry. These theories have been reduced by the calculating power and speed of electronic computers to sets of prediction tables which require no computation on the part of the fabric designer, and which relieve his mind of the burden of formulas.

Development of the data was on Creslan® acrylic fiber but the system is adaptable to a wide range of other fibers.

The Monforts Reactor—Versatile Continuous Dyeing Machine

By Fred Fortess, J. E. Torbet,
G. C. Ward & J. S. Warner,
Celanese Corp. of America

THE MONFORTS REACTOR is a relatively simple machine for applying a high concentration of energy in wet processing for desizing, bleaching, oxidizing or reducing reactions, dye penetration, and thermal stabilization under easily controllable conditions of time, temperature and tension. In many of the pilot plant trials, the European experience with efficient desizing, vat, sulfur, and hydron dyeing of cotton and rayon were confirmed. Major emphasis was placed on reserve, cross and union dyeing of blends and combination fabrics containing Arnel triacetate or acetate with cotton or rayon. Commercially feasible

Sandoz Softening Agent

The Chemical Division of Sandoz, Inc., is offering two new chemical specialties for use in textile finishing. The first, Ceranine PN, is a cationic softener for polyacrylonitrile fibers (a broad category which could include Orlon, Dynel, Creslan and Darvan.) It may be applied to polyacrylic fiber products at any stage in their production, giving a soft, cashmere-like hand, plus improving winding, weaving, knitting and sewing properties.

The second product, Leucophor A, an improved, acid-stable fluorescent whitener for cellulosic fibers, resembles previous optical whiteners in that it acts to increase the amount of light reflected to the eye.

Its special advantages are technical, since it is designed for application in acid finishing baths where ordinary whiteners have proved less efficient. Leucophor A, according to Sandoz, gives a greater yield when used in synthetic resin finishing baths with acid catalysts.



MEDAL OF HONOR—Arnold M. Sookne, left, of Harris Research Laboratories, accepts the 1960 Olney Medal from Weldon G. Helms, president of AATCC at the annual awards luncheon, Oct. 6

processes are available using fixable direct dyes or fiber reactive dyes on cotton or rayon, reserving or cross dyeing the Arnel or acetate with disperse dyes from a common bath containing suitable swelling agents.

For Arnel triacetate the use of an aqueous dyebath containing 20-25% diacetone alcohol and 5% phenyl glycol ether makes possible heavy shades including navy in 10 seconds on the Monforts Reactor. This same bath raises the safe ironing point of triacetate fabrics from 190° to 230°C thus eliminating the need for a separate heat treatment.

A method has been developed for continuously dyeing triacetate black on this machine with 30 seconds residence time, by simultaneously applying a stabilized diazo base and beta-oxynaphthoic acid.

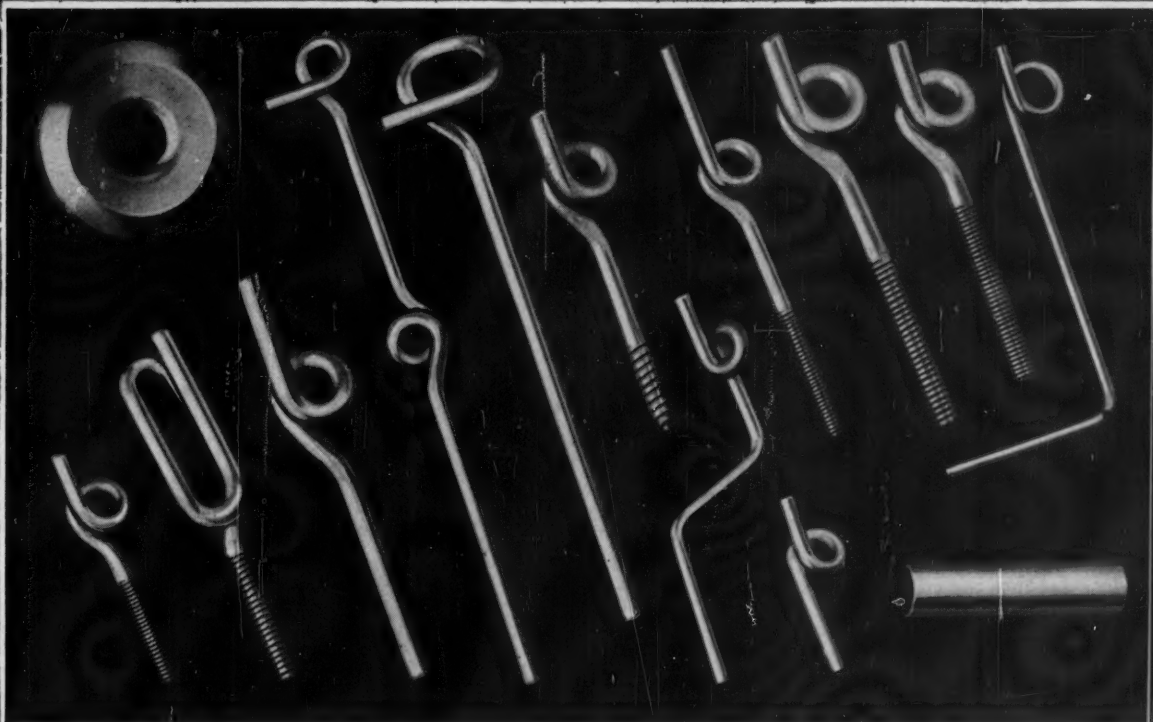
The processing of a wide variety of polyamide and polyester continuous filament fabrics, and spun fabrics based on polyamide, acrylic, nitril and polyester fibers on the Monforts Reactor is described. The advantages and disadvantages of processing sheer continuous filament fabrics, corduroys, pile and tufted fabrics, and heavy upholstery fabrics are discussed.

Summaries of the remaining papers presented at the AATCC convention will appear in next month's issue.

Expand Dye Works

Highland Cotton Mills has begun the final stage of a major expansion of its Cloverdale Dye Works in High Point, N. C. Near completion of the \$250,000 expansion, the firm said, permits Cloverdale to meet the increased demand for its packaged dyed yarns from the knitted outerwear trade. Highland Cotton Mills, in business since 1913, produces carded and combed yarns, both natural and dyed.

MACHINERY and EQUIPMENT SECTION



MITCHELL-BISSELL SATIN FINISH *Chromium Plated Guides*

FOR ORLON, DACRON, ARNEL AND OTHER SYNTHETIC YARNS

Mitchell-Bissell originated the Satin Finish for porcelain thread guides and pioneered its application to chromium plated guides on the principle that by breaking the contact between yarn and guide, tension and consequent thread wear are reduced. This broken contact is achieved by providing a fine granular surface for the guide. Because of the special preparation of the wire, this "hill-and-valley" contact surface of our

Satin Finish Chromium Plated Guides is permanent and the hard, dense finish itself remains dull and satiny almost indefinitely.

Be sure to get the original . . . Mitchell-Bissell Satin Finish Chromium Plated Guides . . . for proven quality and the ultimate in service. Can be made in any diameter of wire, and in any desired shape. Also available in Mirror Finish.

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TRENTON, NEW JERSEY

Southern Representative: HOLT ASSOCIATES, INC., Greensboro, N. C.

NEW

MACHINERY EQUIPMENT



Improved Turbo Crimper

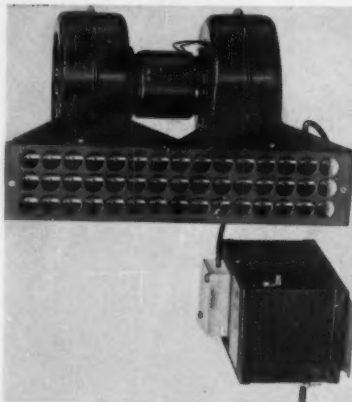
Turbo Machine Co. has redesigned its model DC crimper for synthetic tow to incorporate improvements for producing a superior crimp. Air cylinders on each side of the delivery gate insure proper fiber infeed while a third air cylinder controls the pressure in the stuffing box for required crimp. Crimper rolls are 4 inches in diameter and are available in widths from $\frac{1}{4}$ to 6 inches. Tow is fed into the crimper at a 45° angle directly from a lead-on roll. For further information write the editors.

Yarn-Evaluating Device

A Dutch firm has introduced an evaluation apparatus for use in spinning mills, knitwear factories and weaving mills. It permits yarn to be tested for spinning defects, uniformity and weaving qualities. A four-counter computer classifies the defects discovered and determines the numbers in each of four classes. The device permits the spinning defects to be cut off while simultaneously sorting them by classification. Formerly, a comparison of quality could be estimated only visually. In the Dutch-made apparatus, a computer does the work with a high degree of accuracy. As much as 6,234 yards of yarn per minute can be tested at bobbin speeds of up to 1,036 yards a minute. The firm is N. V. Electronische Apparatenfabriek "Qualitex", Enschede, Holland. For further information write the editors.

Better Static Eliminator

Aerostat, a new long-range static eliminator, has been developed by Simco Co. The new device incorporates a static neutralizer-head in the air outlet of a centrifugal blower. According to Simco, it can neutralize static at distances up to 4 feet on materials passing through the air stream.

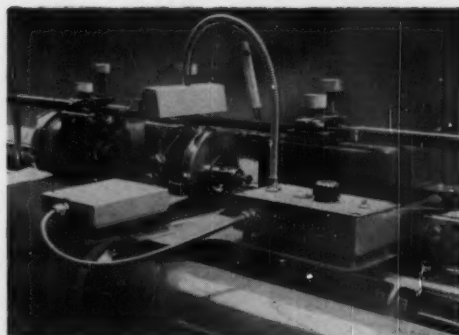


The ionization which causes static elimination is produced in the static neutralizer-head and is carried over these distances in the air from the blower. The Aerostat is available in two sizes, the smaller having an effective length of 10 inches and a larger double unit having an effective length of 20 inches. For further information write the editors.

Better Spinning Frame Ring

A new conical ring introduced by Herr Manufacturing Co., Inc., is said to possess a unique and effective method of lubricating the path of the traveler. The bearing surfaces of the ring are made in two parts so that seams occur on these surfaces. Oil from a central reservoir passes through these seams by capillary action to provide lubrication between the ring and the traveler. Since the complete bearing surfaces of the ring—both top and side—are oiled by this method, less oil can be used and a cleaner yarn maintained during high speed operations. For further information write the editors.

Herr Mfg. Co.'s
new conical ring



Carpet Slitting Machine

British Tufting Machinery, Ltd., Blackburn, England, has developed an automatic carpet slitting and trimming machine. The new machine receives carpet from the coater and stores it with the selvages untrimmed, thus preventing any possible damage that can result from storage. When required for trimming, the carpet is mounted on an unroll stand; it is then taken up into the slitting and trimming machine with the pile facing upwards. Normally the machine runs at 12 to 14 feet per minute, but this speed can be adjusted to suit the carpet being handled. It is reported to be particularly useful for trimming tufted carpets having either scrim or foam rubber backings. For further information write the editors.

Avistrap Strapping Tool

A prototype model of the Avistrap mechanized pneumatic tensioner has been announced by the Industrial Packaging Department of American Viscose Corp. It is designed to handle all sizes of the new Avistrap cord strapping, made of high-tensile rayon cord. The department also announced the opening of its first far western district sales office, in Los Angeles, and its second southeast district sales office in Atlanta, Ga. Brad Hoyt is far western district manager and Herbert C. Schafer is head of the Atlanta district office.

New Kenaf Harvesters

Two new hand-fed harvesters for kenaf will be offered commercially this year by North Atlantic Kenaf International, which has been promoting production of the soft fiber as a jute substitute throughout Latin America. The smaller of the compact, mobile decorticators, which can be operated by a crew of three, weighs about 800 pounds and sells for \$950, f.o.b. Florida. The larger model, weighing around 1,200 pounds, will sell for \$3,950 f.o.b.

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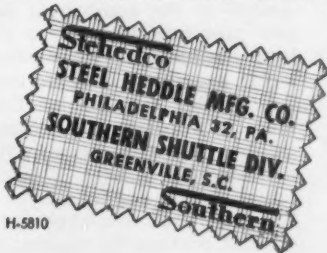
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for longer, trouble-free
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H-5810

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Canada—Lawrence, Mass.—Greensboro,
N.C.—Atlanta, Ga.—Textile Supply Co.,
Dallas, Texas—Albert R. Breen, Chicago, Ill.

POINTING WITH PRIDE—A. W. Thomas, Jr., (center in light suit) president of U. S. Textile Machine Co., explains some of the advantages of the new prototype Utex Large Package Doubler Twister



U. S. Textile Machine Co. shows new

machines, reports on recent growth

SCRANTON, PA—In a three-day "open house" for representatives of the textile industry and the press, U.S. Textile Machine Co., and its newly formed subsidiary, Utex, Inc., last month displayed a wide range of winding, twisting and texturing machinery. At the meeting, A.W. Thomas, Jr., president of U.S. Textile Machine Co., reported on the recent reorganization and expansion program of the company, stating that the establishment of Utex was an important step in this program. He said that U.S. Textile Machine had virtually doubled its sales volume in the past two years, and expects an added substantial increase in sales to be booked this year. He noted that his company had been particularly successful in supplying twisting machinery to the expanding glass textile fibers industry.

Thomas said that the U.S. Acme Fiber Glass Tube Drive Twister, equipped with power driven creel is now accepted as the glass fiber industry's standard. This machine applies initial twist to glass yarns directly from the forming tube at high production rates.

Also featured in the group of machines demonstrated at the company's Scranton plant were two new prototype Utex large package doubler twisters. Both machines have been designed with the need for larger package processing kept foremost in mind.

One Utex LP Doubler Twister has large package take-up with ring rail lifting motion new in concept, capable of traversing a package up to 12" in length. It is equipped with 7" diameter rings capable of taking bobbins with flanges up to 6 1/4" in diameter. This size bobbin is expected to hold up to 6 pounds of most continuous filament synthetic yarns and possibly up to 10 or 12 pounds of continuous filament

glass yarns. The simplified twist changing arrangement comprises a chain and sprocket system wherein one or two sprockets can be easily and quickly changed giving a range of twists in close increment from one to fifteen turns.

The second Utex LP Doubler Twister also permits large package processing with particular emphasis on a long traverse package. The machine is designed to provide a traverse up to 14" in length. This has been made possible by a new concept in rail lifter mechanism. The same mechanism also provides movement to the traversing centering eye guide bar. Of particular interest is the use of a large, easily accessible, variable speed unit with timing belts to provide a nine to one twist change ratio which can be dialed in to the desired twist. This can be done while the machine is in operation.

Among other U.S. Acme machines shown during the open house were the U.S. Acme Jumbo Texturizer, the High Speed Vertical Spooler, the Combo Twister and Doubler-Ring Twisters, including the Fiber Glass Tube-Drive Twister.

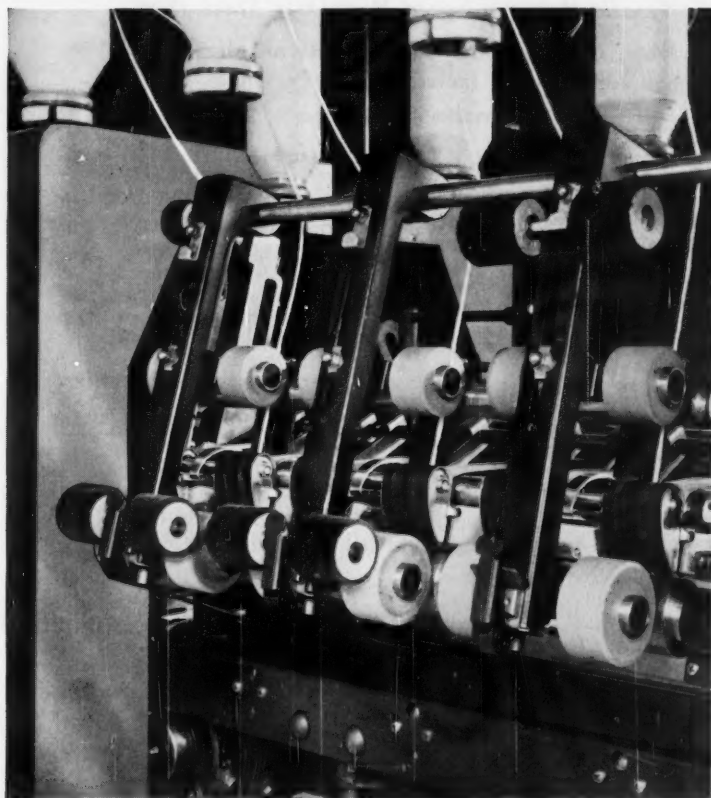
The U.S. Acme Jumbo Texturizer which produces 10" traverse by 10" diameter Taslan from standard yarns is said to be industry's only precision-built machine for texturing new larger packages. This 12 position machine can be used for texturing both filament and spun yarns including nylon, Dacron, rayon, acetate, Orlon, glass fibers and silk.

At the demonstration, Thomas pointed out that the Jumbo Texturizer makes it possible to use supply packages as they come direct from the yarn producer either twisted or untwisted to texture multiple

(Continued on Page 59)

THE MOST
VERSATILE
AND
FLEXIBLE

SYSTEM EVER DEVELOPED



long
staple
spinning

by Saco-Lowell

FOR WORSTEDS
SYNTHETICS
AND BLENDS

This new spinning system offers mills the opportunity to substantially improve quality and greatly reduce production costs. Designed to process worsteds, synthetics and blends in staple lengths from 1.5" to 9" indicating flexibility and versatility never before obtainable. In addition, increased drafts, as much as 50%, with a marked improvement in quality are possible. Complete anti-friction design cuts lubrication time by two-thirds or more, eliminates dirt and lint collecting oil film resulting in reduced maintenance costs.

Long staple drafting is available on the new SJ chassis, improved conventional chassis or as a change-over. This versatile drafting system is also available for roving.

Continued Proof . . . Saco-Lowell sets the pace for the textile industry through research and development.



Saco-Lowell Textile Machinery Division
SACO-LOWELL SHOPS

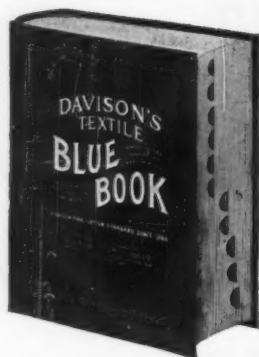
Executive and Sales Offices: EASLEY, SOUTH CAROLINA

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DAVISON'S TEXTILE BLUE BOOK represents over eight months time and an expense of many thousands of dollars in carefully revising over eight thousand separate mill reports and lists of almost thirty thousand allied firms. Arranged, edited and compiled with rigid precision, its more than fourteen hundred pages carefully report the entire industry in the United States and Canada.

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U. S. Textile Machine Co.

(Continued from Page 56)

end yarns to obtain unique fabric styling effects. He also noted that both rug and heavy yarns for industrial end uses may be textured on the machine which is made strong enough to handle a yarn range up to 8,000 deniers.

A single position Texturizer is also available through Utex for use as a laboratory and sampling device as a single unit counterpart to the full size production machine.

The new subsidiary, Utex, Inc., is also the exclusive U.S. distributor of German-made Barmag and Italian-made Scaglia equipment. The Barmag Draw Twister, model SZ1, stretches and twists continuous filament synthetic yarns from 500 to 2000 denier in one operation. The Barmag Two-for-One Uptwister, model DD10, up-twists continuous filament acetate yarns from 60 to 300 denier. The Barmag Constant Speed Cone-Winder features an electrically driven

spindle, yarn tension controlled, for winding of 500 to 30,000 denier rayon or synthetic filaments to precision built cones or cheeses. The Scaglia Spool Stripper is a machine designed for stripping rayon, acetate, nylon and Dacron.

New techniques for weaving Taslan textured yarns—synthetics and glass fibers—were demonstrated on a loom for experimental weaving set up especially for the open house.

It was revealed at the open house, that A. W. Thomas, Jr., had appointed Anthony F. Lema sales manager for both U.S. Textile Machine Co. and Utex; Robert J. Pinnell office manager of Utex and Charles W. Wirth cost accountant for U.S. Textile Machine Co. It was also made known that Pacific J. Thomas had been appointed first vice president and director of engineering, research and development of U.S. Textile Machine Co. He was formerly vice president and chief engineer. In his new capacity, Thomas named Clifford W. Palm as chief engineer and Joseph Nichols as research technician for Utex.

Labor-Saving Burlap Tubing

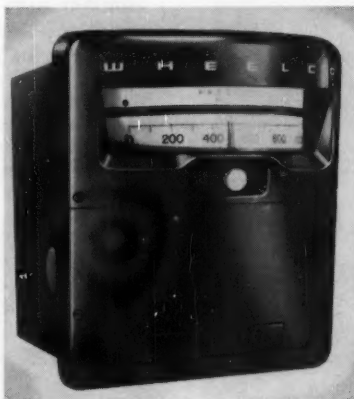
Burlap Tubing Manufacturers, Inc., is marketing Bel-Tex bias sewn burlap tubing, a new burlap tubing with a two-way stretch for packing all types of products. The new bias sewn tubing is said to save hours in packing as compared with using flat burlap.

Labor savings can be obtained with the new tubing, according to the manufacturer, because it fits over the product like a sleeve. It is being used in fabric mills and by carpet manufacturers and many other industries. *Samples and prices as well as other details can be obtained by writing the editors.*

Offset Gravure Press

Pre-Finished Metals Co., Elk Grove, Ill., has installed a new offset gravure press, developed and manufactured by Faustel, Inc. The press is being used for printing patterns and wood grains on metal. The model at Pre-Finish is the 20" width type but the press can also be supplied by Faustel in various widths up to 42". The repeat range is 20" to 30". The Pre-Finish model can be used as a

standard gravure press and several units can be mounted in line to print several colors, if desired. It can print five half tones on metals, foil, or textiles. *For further details write the editors.*



New Pressure Indicator

Wheelco Instruments Division of Barber-Coleman Co. has introduced a new pressure indicator, in two models, the 430A and the 430B. The new models incorporate a measuring system, with DC power supply in a single integral unit. A Zener diode circuit is used to regulate the voltage. The new models are finding wide acceptance in the plastics industry for the pressure measurements of viscous liquids at elevated temperatures. *For further information write the editors.*

Textile Drying Oven

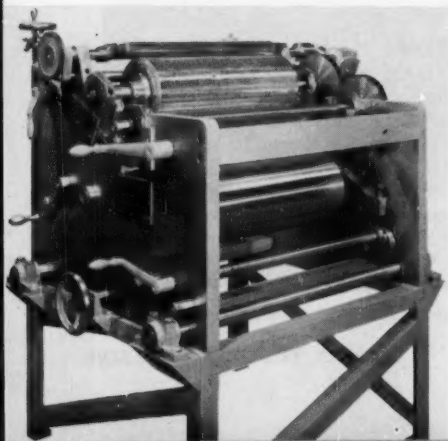
Electric Hotpack Co., Inc., has developed a new textile drying oven that allows individual skeins of material to be inserted, re-

moved and inspected during operation without disturbing other specimens or environmental conditions within the chamber. Eight slots, located in the roof, house covers having an aluminum rod connected to their undersides for draping samples. Temperatures can range from 35 degrees C to 260 degrees C. Controls include an adjustable, automatic thermostat plus limitstat, an overtemperature device that assumes command of heater circuits in the event chamber temperatures exceed the control setting. *For further information write the editors.*



Offset Gravure Press

Textile Drying Oven



Control of Industrial Fabrics

at *Kenyon*



Here finished goods are certified for functional satisfaction, by such tests as: Fadeometer; gas-fading; hot press (hand iron and machine); Launderometer AATCC test; washing and drying in home-type equipment; shrinkage; Autoclave steam test; crocking; perspiration, drycleaning.

Furthering the trend to scientific evaluation and control of textiles, Kenyon has expanded its laboratory facilities into four separate and distinct units:

- 1 Quality Control Laboratory**
— illustrated above — proves the quality of finished goods for functional satisfaction in use.
- 2 Production Control Laboratory**
ensures conformance of work in process with Kenyon standards of excellence.
- 3 Physical Test Laboratory**
satisfies the most rigid specifications of Government and Industry under 100% environmental control.
- 4 Development Laboratory**
conducts the pioneering work which has made Kenyon the leader in finishing fine synthetics.

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PIECE DYEWORKS, Inc.

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NEW FABRICS

NEW YARNS

New Cellular Blanket

A new cellular blanket, woven to hospital specifications by the Pepperell Manufacturing Co., is reported to have several qualities never before found in such blankets. The 100% white cotton blanket, the Guardian, has dimensional stability, can be sterilized with no amount of boiling changing its appearance, is static-free, and its warmth without weight is provided by the cellular weave, according to Pepperell. Shedding also is eliminated. *For further information write the editors.*

Avril Rayon Towels

Callaway Mills is introducing a group of bath towels which combine traditionally used cotton with Avril rayon, a fiber recently developed by American Viscose Corp. The fiber is said to provide unusual shrink resistance, absorbency and stability. Retail prices will range from about 64 cents for the wash cloth to \$3 for the bath towel. Callaway expects to add prints to the towel line in the near future. The ground warp of the towel consists of 75% cotton and 25% Avril rayon. *For further information write the editors.*

Summer Suits Feature Creslan

For the second successive year, Haspel Bros. will feature a lightweight fabric blend of 50% Creslan acrylic fiber, 30% Dacron and 20% rayon, in wash-and-wear spring and summer suits. A nationwide trade and consumer advertising and publicity program has been planned by American Cyanamid Co., makers of Creslan. *For further information write the editors.*

Darvan Coating Fabric

Borg Fabrics has developed a new fur-like pile made of 100% Darvan nylril fiber, one of the contemporary fibers produced by Celanese Fibers Co. A limited edition of women's greatcoats in the deep pile coating fabric will be available for winter 1960. The coats require the same care as a fine fur. *For further information write the editors.*

New Wall-Covering

DeSoto Chemical Coatings, Inc., has introduced a new wall-covering, Endura-Cloth, which features high style designs and a strong woven cloth foundation. It is guaranteed scrubbable. DeSoto describes its new product as "the ultimate in vinyl stainproof wallcovering." *For further information write the editors.*

Vycott Wash-and-Wear

A full scale campaign has been launched by Sagner, Inc., to promote a group of Northcool wash-and-wear suits introduced for spring and summer 1961. The promotion will feature, "Your one-suit summer wardrobe of Vycott." Vycott is a blend of 35% cotton and 65% Vycron polyester fiber by Beaunit, made from Vitel produced by the Goodyear Tire & Rubber Co. Success of the Vycron fabrics, according to Sagner, can be traced to the established wash-and-wear properties of all polyesters. *For further information write the editors.*



Roaman Elected new TDI president

AT THE ANNUAL MEETING of the Textile Distributors Institute in New York City on Oct. 13, Irving Roaman, Reliable Textile Co., Inc., was elected president to succeed Nat Leavy, Goldstein & Leavy, Inc., who has been named chairman of the board. The change of officers becomes effective Jan. 1.

At the meeting, Louis E. Kates, French Fabrics Corp., and Louis J. Brenner, Shirley Fabrics Corp., were re-elected vice presidents. A. J. Wulschleger, Wulschleger & Co., Inc., was elected a new vice president. Ira Jacobson, Cohn-Hall-Marx Co., was reelected treasurer, and Miss Hilda A. Wiedenfeld was re-elected executive director.

In his report to the members, retiring president Leavy stated that during his two years in office, the work of the Textile Distributors Institute had been extended into new areas and that its existing services had been strengthened. He noted that the Institute had taken over the Design Registration Bureau and the Trade Bureau both formerly operated by the National Federation of Textiles. In addition, he



Irving Roaman



Nat Leavy, outgoing president, reports to members

stated, the Institute is inaugurating a copyright service. There is no doubt, he said that the Institute has been of great service and has accomplished a great deal for its members. "All of this has not only created new values for regular and associate members, but has constituted a service to the textile industry as a whole.

"On March 3, 1960, the Textile Fiber Labeling Act became law. This has created many new problems and a great demand from members and many non-members for advice and guidance in order to assure conformity and in order to avoid liability. Many of our bulletins have been devoted to this subject, by answering direct questions by members, or enlightening them about technicalities which they might otherwise have overlooked. Two important and well attended educational forums were sponsored by the institute on the subject.

"During this period, our membership has increased. To some extent, this is due to the enlarged scope of

our activities, under which affiliated branches of the industry have been enabled to participate in the benefits of membership. In this present age of textile technology, the distribution of textile apparel products and the satisfaction of consumer needs, has become more complex requiring a greater cooperation between various facets of industry, such as fiber, fabric and finished products, production and distribution. In this sense, the enlarged and diversified membership has furthered the interchange of views between the various levels. This has been helpful to all.

"TDI has played a prominent part in developing ASA L22 standard tests for fabric performance. These standards have received wide acceptance in this short time. It is in performance standards that the consumer will find his greatest protection rather than in mere fiber identification. The same is true of retail buyers who have become confused by the multiplicity of new fiber names and blends, to say nothing of the many finishes which are used to impart different performance qualities.

Although fiber labeling, which is required by Federal law, is now in general practice, the adoption of standard tests for end-use performance for the benefit of the industry and the consumer still, to a considerable extent, lies in the future. Only a part of our work in this respect has been completed.

"The institute has undertaken many other new activities as well as continued older ones. The value to the membership is considerable, as will be apparent from this brief review:

1. The freight rate service has been reinstated and provides complete traffic information—an increasingly important cost factor.

2. Under design piracy, your Institute's counsel has been active in connection with legislation. In the further protection of members' interests, a design protection clause has been recommended to be used on contracts, etc.

3. Trade practices, affecting both purchasing and selling, are under constant review.

4. There are many other activities, conducted on a day to day basis, in which the institute has been an efficient source of aid and information for members.

"Much remains to be accomplished in promoting the greater use of tests to determine fabric performance. In this area, the action of individual members, over and above the endorsement of the institute, will become an increasingly important requirement. I believe that we can expect that support by retailers will increase materially, that mills will continue to cooperate and that our members who have not already done so will extend their activities in this field.

"There will be many opportunities in the future to broaden our field of information by conferring with other branches of the industry. It might also be a good idea to have inter-industry forums in connection with any further problems, technical or otherwise, which may arise. This will result in promoting the welfare of the textile industry.

"I cannot emphasize too greatly the fact that the institute keeps you well informed on all state and federal legislation which may affect you—and, for that matter, on any other subject which is applicable to the textile business.

I have not yet mentioned two of our most popular and worthwhile activities—the annual golf tournament and the annual dinner-dance. These occasions are enjoyed by the members and their guests and I believe they have a much greater value. For it is a



WORDS OF ENCOURAGEMENT—Jackson E. Spears, Burlington Industries, gave reasons for restrained optimism in his talk before TDI annual meeting

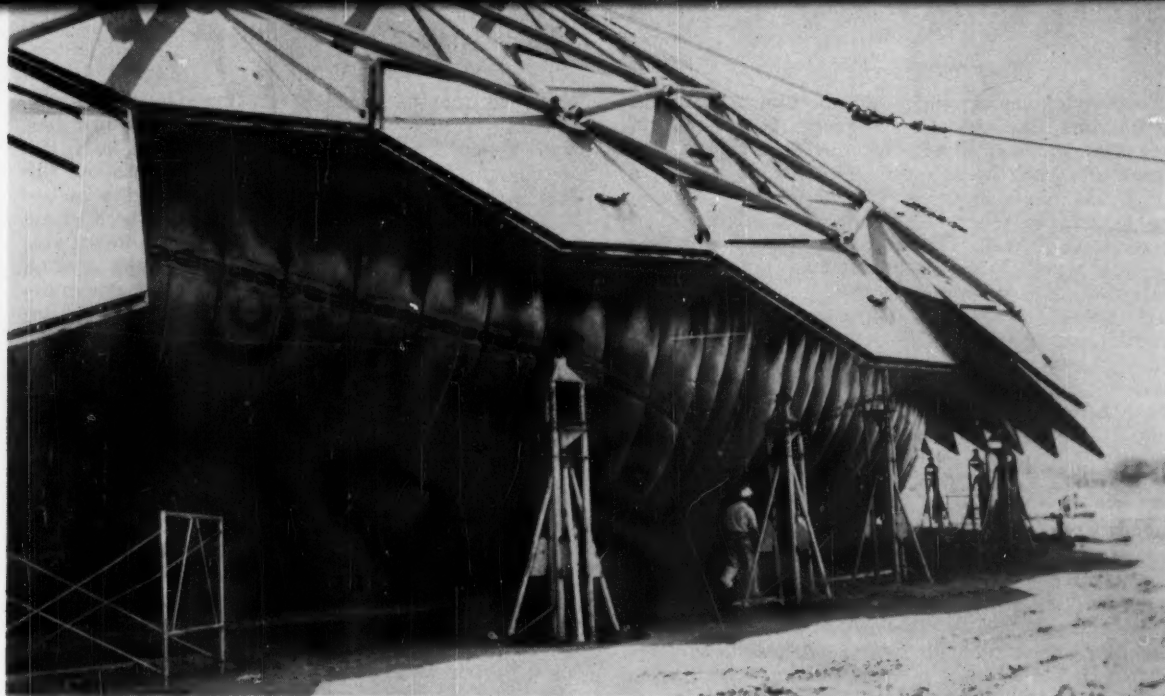
time when we, at different levels of the industry, get together in a relaxed, pleasant and informal atmosphere and at times discuss problems which may confront us. I know from what others tell me, and I am sure that you have heard the same, that these festivities have great value and enjoyment for us all. I would say that this is good public relations.

In all of these activities, I have had the help and support of our officers, directors, committees and of the individual members."

Another speaker at the meeting, Jackson E. Spears, vice president, Burlington Industries, Inc., stated that the textile industry was making encouraging progress in solving many of the problems that had burdened it in the past. "It is pleasant to observe," he said, "that much of the old so-called dog-eat-dog reputation and attitude of the business is becoming a thing of the past. It is increasingly being recognized that the general prosperity of the total industry is essential to orderly operations of our respective businesses, regardless of any particular advantage some concerns may seem to have."

Spears pointed out, however, that many serious problems still faced the textile manufacturing and distributing industries. To solve these problems, he called for better market analyses and merchandising practices, the exercise of a greater degree of responsibility in management and an improved public relations attitude.

At the meeting, the board of directors voted to enact amendments to the constitution of the Institute providing (1) that the annual meeting of the Institute be held between Oct. 15 and Nov. 15 instead of during the month of September; (2) that the term of all officers should be two years instead of one, and that all officers should take office on Jan. 1 next succeeding their election.



NYLON RAISES THE ROOF—Fabricated from coated nylon cloth, this pneumatic lifting diaphragm hoisted into place the top section of the Union Dome, erected to

house a tank car repair shop. As air pressure lifted the dome, the next row of hexagonal steel panels were welded into place at ground level

Looking for new markets?

Here are new profit clues in

INDUSTRIAL FABRICS

By William E. Hoffman

IN THE VAST and varied area of industrial end uses for fabrics, manmade fibers continue to make substantial progress. No sooner does one synthetic fiber "take over" in one area, than it begins to "move in" on another field. There is no gainsaying that the manmade fibers have been winning a larger and larger share of the industrial market for textile products, once the exclusive domain of natural fibers. The beginning of the end of the growth in the use of manmade fibers in industrial applications is not even in sight. And it is not likely to come into sight "in our time."

One of the latest uses for synthetic fabrics has been their application in the construction field. Development of so-called "airhouses" makes possible year-round manmade climate for construction projects and construction workers, making them independent of winter weather with its delays brought on by cold, snow and rain.

Seattle Tent & Awning Co. is marketing with a great deal of success its "Air:Seal Airhouse". This dome-like structure is made from nylon fabric which has been coated with a plastisol based on Geon vinyl resin, a product of B. F. Goodrich. The fabric, produced by Cooley, Inc., is said to owe its long life, colorfastness and flexibility in all kinds of weather to the Geon plastisol coating.

Supported solely by air pressure, the vinyl impregnated nylon domes have no interior props or poles to interfere with the work or construction being conducted inside. Seattle Tent & Awning says that air supported structures may be built large enough to enclose half a city block and still maintain an inside temperature as high as 40 degrees above that outside the "house."

The air inside the flame-resistant dome can easily be heated. Recently a 60 x 110-foot "house" maintained interior heat by a 450,000 BTU portable heater, which also supplied air pressure to support the structure.

The use of such air-supported domes over outdoor swimming pools, outside storage depots, etc., to permit their use year-round, is already an old story. But on the industrial side, their use by contractors to protect the building under construction no matter what weather conditions prevail, presents not only a great savings in time but also on overall production costs. Seattle Tent & Awning airhouses are offered at from \$1 to \$1.50 per square foot. Their ability to withstand frigid weather recently was demonstrated when the U.S. Government selected Air:Seal Radomes for use on the Arctic Distant Early Warning System (DEW Line).

A Cleveland builder, Robert Brown, uses an air-

inflated nylon shelter which permits him to maintain his building schedule—a home every 21 days—in the face of all kinds of adverse weather. The shelter, designed and built by Domestic Film Products Co., is put to use immediately after a bulldozer has leveled the site and dug a basement. Lumber, brick, sand and other building materials are placed on the site. The shelter's nylon "skin" is spread over both site and materials, then anchored to the ground by a base cable and 66 stakes. The stakes are driven into the ground at intervals of four feet. Two blowers, each with a three-quarter horsepower motor, are installed at one end of the shelter. They blow air under the cover, ballooning the 18-ounce fabric into a firm air-supported shelter. The structure can be staked out by 14 men and inflated with 125,000 cubic feet of air in an hour.

Speeds Concrete Setting

Eau Claire Stresscrete, Inc., has improved its method of steam-curing pre-stressed concrete while lowering costs through the use of portable kilns made of Herculite 80, an 18-ounce vinyl-laminated-nylon. The fabric locks in both steam and heat during the curing. Herculite, being nonporous, and with a proven water permeability in excess of 500 pounds per square inch prevents most of the loss of live steam and moisture within the forms and molds, thus providing the most favorable temperature conditions.

Perhaps the most ingenious among the new uses for air structures is their utilization to permit permanent buildings to be constructed from the top down! Graver Tank & Manufacturing Co., a division of Union Tank Car Co., has completed what it believes to be the largest structure in the world ever to be built in this way. It is the giant circular building of the Union Dome in Wood River, Ill. Constructed of nearly 1,000 hexagonal steel panels welded together, the dome-shaped structure is as high as a 10-story office building and large enough inside (110,000 square feet) to hold a baseball or football field. It houses a repair shop for railroad tank cars.

In erecting the Wood River Dome by starting at the top, Graver employed a huge nylon fabric bag with which it literally lifted the dome on air. Ultimately the entire dome shell—560 tons of steel, 120 feet in height and 380 feet in diameter at the base—rested on a mere 1.60 ounces per square inch of air pressure. The operation made it possible to do virtually all construction work at or near the ground. As work progressed, the dome was raised pneumatically to successively higher levels, making room for the addition of another row of panels at ground level. In all there were 26 lifting operations in which the heavy dome shell was raised at the rate of one inch every 30 seconds.

Technically known as a pneumatic lifting diaphragm, the vinyl-coated Du Pont nylon bag—only 1/32-inch thick—was made to Graver's specification by Domestic Film Products Corp.

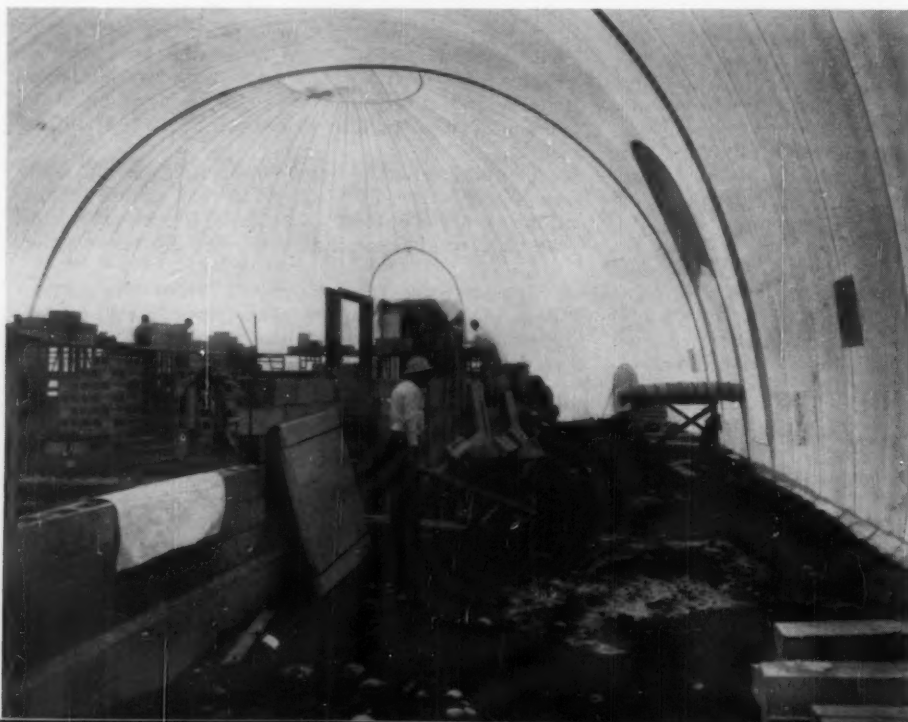
Herculite 80, produced by Herculite Protective Fabrics, has found other applications. The Zim Israeli American Line uses the vinyl-coated nylon weather cloth in the main deck corridor of the liner S.S. Jerusalem to take the place of metal closures.

Herculite 20, made by the same company, has been used by the American Electric Power System during the last three years on the work site of new power units to reduce fire dangers. The fabric combines high tear strength, great durability, lightweight and daylight transmission.

Herculite Road, still another of the company's products, is finding wide use in tarpaulin applications. Since the fabric is waterproof (not merely water resistant), cargo damage in open trucks has been greatly reduced.

Hypalon coated nylon is being employed as truck covers, fumigation wraps and starting gate curtains on horse tracks. The fabric is produced by the Vulcan Rubber Products Division of Reeves Brothers, Inc. Hypalon is a relatively new synthetic rubber, combining exceptionally high wear and weather resistance with the ability to take an unlimited range of color.

In the area of nylon shelter fabrics, a promising new development is a "breathable" uncoated tent cloth woven of Du Pont Type 300 nylon. It possesses both air permeability and resistance to water penetration. No coating is required. Previously coated nylon fabrics, Du Pont states, had been tried in tent



UNDER COVER—This huge nylon tent, held in place by air pressure, allows building operations to go on during bad weather

fabrics without success. They didn't "breathe", and condensation formed on the inside walls. The new fabric is woven by Burlington Industrial Fabrics Co., and made into tents by Eureka Tent and Awning Co.

A new truck tarpaulin of neoprene coated nylon, has been developed by United States Rubber Co. Designated Fiberthin 71514T-Truck, the new construction is said to offer 300% more abrasion resistance than other current neoprene materials, and greatly improved bond of the coating to nylon. The adhesion is rated by the company at 40 pounds per square inch, and is unaffected by moisture. U.S. Rubber does not sell finished tarps but supplies the Fiberthin material to fabricators.

Fire & Industrial Hose

In fire and industrial hose, manmade fibers continue to broaden their already well-established acceptance. A Du Pont survey covering more than 300 fire chiefs in communities of less than 10,000 population cites a sharp trend toward use of fire hose jacketing in a combination of Du Pont Dacron polyester fiber and cotton. The continued trend toward use of fire hose using Dacron in hose jacket construction parallels conclusions from a survey conducted a year ago among fire chiefs in 600 communities of over 10,000 population.

BIG DRAPE — These huge red tarpaulins of coated nylon made by Reeves Brothers are used to seal off houses being fumigated



FASTER CURE—This vinyl-laminated nylon fabric is used to keep in steam and heat during the curing of prestressed concrete bridge girders and other structural parts. This results in a quicker setting of the concrete with lower heat costs

In reporting their fiber preferences, 74% of the responding chiefs favor Dacron and cotton, 13% prefer nylon and cotton, and 10% favor all-cotton hose jackets. Three percent mentioned no preference. Some 90% of the fire chiefs believe hose containing synthetic fibers in jacket construction will become more popular in the future, with 3% believing otherwise.

Based on information developed by the more recent survey, it is estimated that fire departments



of all communities under 10,000 in population stock about 60 million feet of hose of all sizes, of which about 50 million feet are treated to resist mildew.

A multiple-woven hose and a double-jacketed line in 100% Dacron construction have been placed on the market by Eureka Fire Hose division of United States Rubber Co. Both lines are offered in diameters of from 1½ to 6 inches, in lengths of 50, 75 and 100 feet, and able to withstand pressure up to 600 pounds per square inch. Eureka Fire Hose believes that the new, 100% Dacron construction completes the changeover from organic to synthetic fibers, with Dacron-cotton constructions only serving as the intermediate step. Among the advantages for the polyester fiber are its resistance to abrasion and chemicals, lightness in weight, flexibility and tensile strength.

Adhesive Treated Yarns

Among significant new developments in the manufacture of industrial hose, Industrial Rayon Corp. reports a decided economic advantage in the use of adhesive treated rayon yarns. Industrial Rayon, which introduced adhesive treated yarns last year, stated that these eliminate the need for further adhesive treatment by the customer. In addition, the company noted the yarns provide a superior adhesion when used with most rubber stocks. As a result of these advantages, major industrial hose manufacturers are using these yarns in a broad range of low, medium and high pressure hose.

High strength, adhesive treated yarns are offered by Industrial Rayon in required twists and ply constructions on packages that can be used directly on the manufacturing equipment of the hose companies. The "tailored" constructions and packages afford further economic advantages to the hose manufacturers, according to Industrial Rayon.

Braided hose, in a variety of weights and diameter, is being reinforced with Fortisan-36 rayon yarn produced by Celanese Corp. of America. According to Celanese, the Fortisan-36 provides an unique combination of low growth and high burst resistance plus the added advantage of reduced weight. In this end use, Fortisan-36 has still the additional valuable property of neither shrinking nor stretching under the influence of heat and moisture. This provides better quality control during manufacture of the hose and improved performance of the product in use.

Filter Fabrics

An increasingly important application of synthetic fibers in industrial end uses is their function as filters in sanitary and sewage systems. A tent-like structure of specially treated DuPont Dacron polyester fabric covering 10,000 square feet, ended complaints that the sewage treatment plant at Sarasota, Fla., had been receiving from nearby residents about offensive and corrosive hydrogen sulfide. The fabric, weighing 3.4 ounces a square yard, and woven closely enough to trap the fumes coming from the filter bed, ended threats of legal actions by the residents.

Chemical-resistant Dynel modacrylic fiber, produced by Union Carbide, is widely used in the filter industry. In particularly strong demand are Dynel filter bags for the new, economy-priced diatomite type filter units for above-ground collapsible pools, according to Mil-An Manufacturing Corp., which makes these bags for the pool industry. Gearing its produc-

tion to latest pool industry estimates of over 85,000 pool installations for 1960, Mil-An currently supplies a good portion of the filter bags, comprising 40 different sizes and types for diatomite, plate-and-frame, vacuum and other portable or permanently "built-in" filters made. The Dynel modacrylic fiber is woven to Mil-An's specifications by such textile mills as U. S. Rubber and Wellington Sears. Mil-An cites, among the advantages for Dynel bags, its resistance to attack by chlorine and other chemicals in pool water, plus its porosity and flow rate factors to provide good filtration.

The Union Sugar Division of Consolidated Foods Corp. reports that sharp cuts in labor and material costs were achieved when it switched to Dynel filter fabrics in refining sugar beet syrup. Union Sugar said that during the first year Dynel was used, total filter costs dropped from 3.2 cents to 1.4 cents per ton of beets processed.

Dynel is used by Union Sugar in the final filtration of 68-70 Brix Standard Liquor before it is crystallized to white sugar. Dynel cloths backed by metal plates form filter leaves. Before adopting Dynel, Union Sugar's filtration was handled with 16-ounce cotton twill in plate and frame filters. These cloths had to be removed for cleaning once each 8-hour shift. The result: downtime of each filter amounted to about one-third of total operating time.

By contrast, Dynel filters are sluiced once each 24 hours with thinned liquor under 60 psi pressure followed by a small amount of water and are removed for cleaning only once a week. The yardage of Dynel filter cloth used runs about 1% of the cotton cloth previously required, the sugar producer stated.

Cutting Down Air Pollution

Air pollution by smog and smoke is a serious problem for more than 10,000 American communities from the standpoint of health, property damage, morale and industrial operating costs. Property damage, according to Owens-Corning Fiberglas Corp., has ranged from \$2 billion to \$7 billion annually just from air pollution. The smog problem in some areas is so acute that the chemical industry spends \$250 million annually on air pollution control measures. In Los Angeles County alone, where last year there were only six completely smogless days, industry spends \$50 million a year in fighting this blight. A bill is now before Congress to authorize expenditures of at least \$5 million annually in Federal funds to finance research and technical assistance in the field of air pollution. Here is a gigantic new market for man-made fiber fabric filtration products.

Industry is using a number of filtering systems to extract and dispose of gases, soot and smoke before they can get into the atmosphere. Owens-Corning reports some plants have achieved fairly good results with the latest type of filtering method—a battery of filter bags made of woven Fiberglas fabric. Bethlehem Steel, to overcome the problem of electric furnace fume dust, installed 792 of them, each 11½-inches in diameter and 25 feet long. The silicone-treated glass fabric bags withstood the high temperatures—up to 550 degrees F. The bags were manufactured by Menardi & Co., with the "bag house" designed and constructed by Western Precipitation Corp.

Along with their greater heat resistance than other types of filter bags, the glass bags are said to possess better chemical resistance. They do not require shaking like other filter bags, and will not shrink or stretch and thus do not lose permeability.

American Air Filter Co. has introduced a high-temperature glass cloth dust collector, available in sizes ranging from 1,980 to 17,825 CFM in single units. These custom-made fabric bags also are siliconized and will withstand temperatures of up to 550 degrees F. Maximum temperatures for cotton or wool bags used on standard fabric arresters run from 180 to 200 degrees F. The American Air Filter bags are collapsed pneumatically to dislodge collected dust. The collectors may be used in connection with foundry cupolas, and virtually any kind of industrial furnace—malleable iron, brass melting, electric and open hearth—cement kilns, drying applications and all "hot" applications.

New Military Uses

Man's first inhabited space station may be packed in a small container as it leaves the earth, blown into shape like a balloon when it reaches orbit and then "rigidized" by quick-setting plastic foam. All this may be possible through use of expandable coated fabric structures, according to Goodyear Aircraft Corp., which developed the material for applications in space technology. The fabrics, either of organic or metallic fibers, will be able to withstand high temperatures, extreme cold and the hard vacuum of space. Goodyear engineers envision space stations which will be enormous earth-circling expandable structures where men will be able to work with scientific instruments and live in comfort.

Attracting searchers but fending off sharks are two of the features required in a neoprene-coated nylon fabric which has been playing a vital part in the nose cone recovery of missiles. The recovery package must function properly for a successful recovery. The package furnished to the U. S. space people by Cook Electric Co. is comprised of three separate systems: a parachute system to decelerate the load; a flotation to keep it afloat, and location equipment (visual and radio beacons). The fabric of the parachute, which slows the re-entry of the nose cone into the atmosphere to prevent it from burning up by friction, is neoprene-coated nylon supplied by Reeve's Vulcan Rubber Products Division.

Cushioned Landings

Goodyear Tire & Rubber Co. recently received orders for 96 air cushions from the Air Force, for use as "shock absorbers" in recovering the AF-TM-76 Mace tactical missile during training and test flights. These "recovery bags", made of neoprene-coated nylon fabric, are shaped like giant sausages and fit snugly around the belly of the missile when popped into shape by compressed air. Without recovery bags, the Mace would be a one-shot weapon which would plunge earthward to destruction at the end of its flight. Ability to recover the missile means that troops can be given more intensive training in launching sequence, with the cost significantly lower.

A coated fabric balloon, which can inflate in one-tenth of a second, also has been developed by Goodyear for a high-altitude recovery system designed to control deceleration of re-entry vehicles.



FABRICATING FILTERS—For the increasing number of swimming pools in use, these filter bags have been cut from Dynel fabric. Sewing operation is next step

Goodyear has been awarded a one-million-dollar contract by the Army Corps of Engineers for 500 10,000-gallon pillow-type storage tanks. It is the second such major contract received by Goodyear within a year from the Engineers. The two orders call for more than 1,100 of the rubberized fabric storage tanks at a cost of nearly \$2,500,000. The tanks are 40-feet long, 10-feet wide and 4-feet high when filled. Constructed of synthetic rubber-coated nylon, the tanks will be used at domestic and foreign bases for fuel storage. They are comparatively light, easy to handle and roll up like a rug when not in use.

The Air Force is experimenting with a 50,000-gallon "sack", Goodyear reports, to provide a new approach to traditional problems of fuel storage and plane refueling. The sack, built by Goodyear, is believed to be the world's largest rubberized fabric "pillow" tank ever built.

B. F. Goodrich Chemical Co., on the other hand, reports that the world's largest air-supported structure is now in use by the armed forces as a missile maintenance shelter at Andrews Air Force Base near Washington, D. C. Made from nylon coated with Geon vinyl, a Goodrich product, the huge structure is said to be as high as a nine-story building and measures 150-feet in diameter. Four smaller domes, each 50-feet high, are connected to the main structure. The combination fabric in the air structures, called Tuff-Tarp by its developer, Farrington Texol Corp., can withstand winds of hurricane force as

well as temperatures as low as 40 degrees below zero. Approximately 18,000 square yards of the semi-translucent material were required for the huge structure. Lightweight and tough, the fabric can be easily folded for transportation by military vehicles.

To meet the rigorous performance requirements for a filter material in the induction air cleaner of the U.S. Army M-60 diesel tank, a Dacron material, Troy-felt, made by Troy Blanket Mills, was found to measure up. The filter in the tank must provide almost 100% filtering efficiency in "zero visibility" dust conditions; it must function in ambient air temperatures ranging from minus 65°F. to 125°F., and be able to withstand oil, moisture, rot and mildew.

To meet these requirements a number of different materials were tested, Troy Blanket reported, including nonwoven felts of wool, synthetics, and cotton and woven fabrics of wool, cotton, glass and synthetics. Test evaluations showed that nonwoven felts made of Du Pont's Dacron polyester fiber gave the longest service life and in addition provided good resistance to rot and mildew.

In the use of fibers for military purposes, it was announced last month by Owens-Corning Fiberglas that it had developed a new glass fiber with 50% more rigidity without sacrifice of strength. Intended for the Air Force, the new glass fiber is expected to permit important weight savings in the development of aerospace vehicles and missiles by its use as a reinforcement in structural plastic laminates.

Ropes and Hawasers

Another important industrial market for yarns and fibers, that of ropes, hawsers and cordage generally is in a fair way toward being almost wholly captured

by the manmade fibers. Industrial Rayon Corp. reports that its polypropylene yarns, marketed under the tradename Prolene, have proved well-suited for marine cordage and ropes. Major cordage companies have completed intensive tests of ropes made with Prolene and, on the basis of excellent results achieved, have started commercial manufacture of these products. Tow ropes made with Prolene are being used by boats on the Great Lakes and along the East Coast. Among reasons cited by Industrial for the successful penetration of Prolene yarns into the cordage field are that Prolene is lighter in weight than other synthetic fibers used in ropes and does not absorb water as do other synthetics. It possesses high strength and unexcelled resistance to abrasion. Prolene also has superior resistance to chemicals. As a result of these characteristics, Industrial Rayon believes that Prolene yarns will be used in increasing amounts in cordage for a broad range of purposes. Other principal markets in which Prolene is being used with highly favorable results are industrial filter cloths and tarpaulins.

Big Tow for Nylon Hawser

Meanwhile nylon, by now widely accepted as a superior material for ropes and cordage, as well as other heavy industrial uses, continues to gain acceptance in these fields. The strength and durability of nylon hawsers was dramatically proved not many months ago when the giant ocean-going tanker "Astrid Naess" was towed from New York Harbor to Kiel, Germany by the tug "Edward J. Moran". The tow line used was made from Allied Chemical Corp.'s golden Caprolan nylon twisted into rope by Plymouth Cordage Co.

In many end uses where fabrics have never been used before, Du Pont's Teflon TFE-fluorocarbon fiber is currently breaking new ground. At the present, nearly 50 firms are producing commercial fabrics and other products of Teflon TFE fiber. The synthetic is becoming so popular for use in packing, seals, filtration, diaphragms, gaskets and bearings that facilities for production of Teflon TFE were expanded and modernized at Du Pont's Spruance Plant at Richmond, Va., in the first quarter of 1960.



TAUT AND TOUGH—Strength of polypropylene tow rope made of Industrial Rayon's Prolene fibers is shown in this photo of a tug pulling an ore freighter into dock on Great Lakes

Advantages of Teflon TFE include: its low coefficient of friction; high resistance to cold flow; chemical and thermal stability; mildew resistance; zero moisture absorption, and its ability to stand up to outdoor exposure. Fabrics of this fiber have withstood static loads up to 60,000 pounds a square inch without significant deformation.

Last month, Du Pont announced that experimental quantities are available of a new Teflon FEP-fluorocarbon monofilament fiber. It may be purchased for product evaluation in experimental amounts at \$35 a pound. It comes in two sizes: 250 denier and 1,200 denier. Also made available for the first time is 100 denier multifilament yarn of Teflon TFE fiber, the lightest weight yarn yet produced of this material. For experimental use it is priced at \$67 a pound.

Another yarn, previously sold only in experimental quantities, now is being produced commercially. This is 200 denier multi-filament TFE fiber, priced at \$27 per pound. Four hundred and 1200 denier multi-filament yarn and staple fiber of "Teflon" TFE-fluorocarbon were initially introduced at \$20 per pound, but currently sell for \$14 per pound.

The new monofilament is believed to be potentially useful in such fields as chemical distillation and gas de-misting where wires of precious metals now are required. In vacuum filters of window screen construction, where residue caking is a problem, the non-sticking characteristic of Teflon makes cleaning quick and easy. Furthermore, fabrics made from Teflon FEP-fluorocarbon monofilament fiber can be heat sealed to prevent edge raveling—a major problem with conventional fabrics woven from "Teflon" TFE multi-filament yarns. Brushes, made with bristles of the new monofilament, can be dipped in any acid or solvent without damage.

The lighter multi-filament yarns also may have application in the medical field, for they may be woven into thin filter fabrics for use in surgical masks. The fact that nothing sticks to "Teflon" makes it potentially valuable for evaluation as a bandage material.

Coronet Piece Dye Works, reports it has made substantial economies in material and maintenance costs in standard dyeing operations through the use of dye reel covers and extractor bags made of Dynel fabrics. The dyeing plant, which dyes all types of tubular knit goods, in-

cluding cottons, woolens and synthetics on a production basis, uses 100% Dynel 12-ounce fabric, woven by U.S. Rubber Co., to cover the stainless steel overhead winch reels in each of its 10-foot dye boxes. The covers protect knit fabrics while they are being dyed.

Molded Fabrics

Union Carbide's Textile Fibers Department now reports that woven or knitted textile fabrics of Dynel fiber may be deep-drawn and molded into permanent shapes for many different consumer and industrial products by several of the widely used plastic molding methods. The shaped fabrics can be left soft or stiffened, depending on the temperature and pressure of molding.

Typical of the many shaped Dynel fabric products possible by these forming methods are: seat and arm rest covers for furniture; special decorative upholstery effects; stiffened linings for outerwear; soft shoes and beach slippers; textured covers for radios and other product housings; grill cloths for radio, TV and Hi-Fi sets; industrial flange and valve covers; ribbed battery separators; and protective packaging for delicate instruments.

Nylon Outlasts Cotton

Reeves Brothers has introduced synthetics which have gained a strong foothold in the industrial field. The company's latest product is Reevecote, Style 7358, a neoprene coated nylon fabric specially developed for use as diaphragm material in diaphragm-operated air compressors. The material is designed to



NYLON ROPE IN USE—High abrasion resistance and strength makes nylon rope popular with small boatmen

MOVING UP—Conveyor belt made of high tenacity rayon yarns of American Enka Corp. moves sand in continuous operation

withstand the rapid flexing and temperature build-up encountered in air compressors. With a thickness of 0.070-inch, the material has a Mullen burst strength of 1,400 pounds per square inch and a grab tensile strength of 700 x 700 pounds. The material can also be supplied cut and molded to customer's specification.

J. B. Schaaf Co. has found use for another Reeves Brothers synthetic, Coverlight-H, a nylon fabric coated with Hypalon, a synthetic rubber combining exceptionally high wear and abrasion resistance. The Schaaf firm used Coverlight-H to make chute bags for cutting down time of truck loading by 90% for the Richter Concrete Corp. The bags convey crushed stone, pebbles, sand and cement from storage bins to dump trucks. The company formerly used canvas duck bags which quickly wore through and had to be replaced as often as twice a day during peak seasons. The Coverlight-H bags are replaced only at a rate of one per week.



Conveyor Belts

By now widely used in a broad range of industrial conveyor belts, manmade fiber fabrics are achieving new high standards of usefulness in this punishing end use. Belting woven of American Enka Corp.'s high tenacity rayon has been installed during recent months in a number of places where the demands for strength and endurance have been extraordinary. To move gravel to build a new 13-mile embankment across Great Salt Lake for the Southern Pacific Railroad, a two-mile long conveyor belt of Enka nylon is being used. The conveyor belt moves at 850 feet per minute to deliver 75,000 tons of gravel a day to a storage pile.

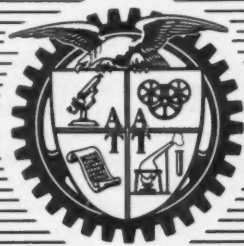
Another recently installed conveyor belt carries 1,000 tons an hour over 5½ miles across the Oklahoma countryside, and does it more economically than any other type of hauling. B. F. Goodrich built the belt. A special fabric, Nyfil, was built into the rubber, and makes it so strong that a single belt can now cover distances that used to take three or four belts. One

Goodrich belt in this spectacular overland system actually spans 2.2 miles. The conveyor was constructed to deliver limestone from the quarry to Ideal Cement Co.'s cement plant.

The Dow Chemical Co. has developed a tough, lightweight tapelike filament for snow fence applications. The Michigan Highway Department, which helped Dow pioneer in the testing program last year, reports that the woven-fabric fences of Rovana (Dow's saran micro-tape) performed well. More snow fence tests in Michigan and 10 other states are scheduled during the 1960-61 winter season.

Making great progress in the industrial packaging field is American Viscose Corp.'s Avistrap cord strapping. Avistrap is made of high-tenacity rayon cord. It is reported to have ample strength for many industrial applications, although it weighs only ¼ to 1/7 as much as steel strapping of comparable strength. The AVC strapping offers entirely new advantages for materials handling of all kinds, including air freight. Economy, ease of handling, and safety are among the primary features of the new strapping.

PAPERS OF THE AMERICAN ASSOCIATION FOR TEXTILE TECHNOLOGY INC.®



AATT

ARNEL 60

A new, stronger triacetate fiber

By Claude S. Clutz, Howard F. Elsom & Robert D. Williams

SINCE its introduction in 1954, Arnel, triacetate, has grown into an important market fiber. Its growth, in dress and sportswear fabrics containing 100% Arnel or combinations with other fibers, has been spectacular.

In order to give some concept of the success of Arnel on a measurable basis, we have listed the number of Arnel garments sold in 1959. During a five year period this number has gone from zero in 1954 to 70,000,000 garments sold in 1959.

Women's Dresses	33,000,000
Women's Blouses and Skirts	25,000,000
Women's Slacks and Shorts, Suits and Miscellaneous	
Outerwear	3,000,000
Women's Lingerie and Nightwear	3,000,000
Children's Wear	5,000,000
Men's Wear	1,000,000

Number of Garments Sold in 1959	70,000,000
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The commercial fabrics responsible for this rapid development are listed below by general types:

Filament

Filament Arnel/Cotton
Broadcloth
Stripes
Checks
Plaids
Novelties (Dobbies, Meshes, Bouclés, Cords, Piques, Dimities)
Arnel Sharkskin
Arnel Prospector
Arnel/Rayon Plied Yarn Crepes
Arnel Failles, Ninons, Sheers
Arnel Tricot Outerwear

Spun Yarn Goods

Arnel/Cotton
Oxfords, Checks, Novelties
Arnel/Rayon
Bengaline, Broadcloth, Poplins, Tropicals, Flannels, Gabardines, Challis, Linens
Arnel/Polyester Casement Cloth
Arnel/Cotton Circular Knits
Arnel/Orlon Circular Knits

More than 300 different constructions and styles are included in the fabrics listed above.

Since continued success of a fiber depends upon development of new products, it is incumbent upon us to analyze why these fabrics were successful. It is easy to say, "Because the market wanted it," or Be-

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Claude S. Clutz

Paper presented at the September 7, 1960 meeting of the American Association for Textile Technology at New York, N. Y.

cause the fabrics were profitable to the converter and weaver." True though these factors are, we are interested in a more detailed analysis.

If we examine the major commercial Arnel fabrics listed above, the reason for their success unfolds rather simply. The Arnel/cotton combinations were successful because of style, economics and ease of care; *style* because of color versatility by cross, tone on tone, reserve and union dyeing flexibility, hand and appearance; *economics* because these fabrics in all their varying styles could be obtained by piece dyeing rather than yarn dyeing with its attendant dyeing and inventory problems and costs; *ease of care*, including good washability and pleat and crease retention.

The Arnel sharkskins and prospectors have enjoyed tremendous success primarily because of the desirable hand and over-all appearance, combined with washability and pleatability. One of the outstanding pluses of the Arnel/rayon plied yarn crepes has been the silky, lustrous hand which Arnel imparts to the fabric.

Luster, hand, and other ease of care characteristics are responsible for the success of the Arnel failles, ninons and sheers.

The tricot jersey outerwear of 100% Arnel simply gives a good overall fabric with durable pleatability and true ease of care characteristics. Originally this fabric started as a lingerie fabric, but now over 80% of the fabrics are used in outerwear.

Arnel imparts a soft hand, color versatility, and provides a good non pilling fiber to the Arnel/cotton and Arnel/Orlon circular knits.

In summation, ease of care with good style, ease of manufacture and economy are characteristics common to these successful fabrics.

There was another vitally important catalyst present in the Arnel success story. This catalyst can best be described as the "know-how" of the general textile industry. Through the cooperative efforts of Celanese Marketing Department and the adaptive flexibility of the textile trade, initial difficulties were quickly overcome.



Howard F. Elsom

Elsom is a group leader in product development in the Charlotte laboratories of Celanese Corp. of America. He joined the company in 1952 after two years with American Cyanamid Corp. He holds a Bachelor of Science degree in textile chemistry awarded by the Georgia Institute of Technology in 1950.

The introduction of a new fiber usually requires the development of new techniques in fiber or fabric processing. Arnel proved to be no exception. The triacetate fiber exhibited affinity for the same classes of dyestuffs as had been conventionally used for acetate. However, in order to achieve maximum fastness characteristics at practical and economic processing conditions, new techniques were developed for dyeing heavy or medium heavy shades. These techniques included the use of selected dyes and dye accelerants and higher temperatures than had been used with acetate. The new technology developed jointly by Celanese and a few commercial dyehouses is now generally used in the industry.

In order to obtain the optimum in color washfastness, dimensional stability and safe ironing temperature, heat treatment, which was rarely considered with acetate fabrics, became an important factor in finishing Arnel fabrics. While only a few finishing mills were initially equipped in terms of knowhow and equipment, today there are a relatively large number who successfully heat treat fabrics containing Arnel.

Most of the problems encountered with the introduction of Arnel have been solved through the coordinated efforts of the textile industry, and we have established a firm foundation for the continued use of Arnel in profitable end uses. Early in the development of Arnel it was realized that Arnel could find uses in a wider range of textile fabrics if the fiber could be made stronger and thus permit finer count yarns, thereby giving lighter weight fabrics, particularly in the broadcloths, print cloths, tropicals and jersey knitted goods. This is now possible with Arnel 60.

Essentially Arnel 60 is the same as regular Arnel staple except for tensile properties and surface characteristics. We shall review some of the more important characteristics of Arnel 60 which are also inherent in regular Arnel, first in terms of fabric performance, and then in terms of fiber properties of Arnel 60 which are different from Arnel.

Dimensional Stability

Arnel 60 fibers are inherently stable. With proper finishing procedures laundering and tumble drying shrinkages of less than 3% in both warp and filling are obtainable in most Arnel 60 fabrics. Circular knitted fabrics can be constructed and finished also with a relatively high degree of dimensional stability.

Crease and Pleats Retention

Arnel 60, like Arnel, permits the application of pleats and creases which are retained in end usage and laundering. Properly constructed fabrics include utilization of sufficient quantity of Arnel in the yarn direction to be pleated. Figure 1 illustrates this property.

Whiteness

Good whites are practical in Arnel 60 fabrics. Arnel 60's relatively low sensitivity to damage in chlorine, peroxide and hypochloride bleach makes possible good retention of whites, particularly in the cotton blends. An added feature of Arnel fabrics is that they are not subject to chlorine damage. Weakening with repeated washings where bleach is added is thereby precluded.



Figure 1

Retention of whiteness of Arnel fabrics is further assured by their good resistance to scorching. Figure 2 shows a portion of the results reported by the Washington Section of the A.A.T.C.C.,* wherein they studied the relative scorching tendencies of various fibers. Arnel leads the group of fibers in its resistance to scorching.

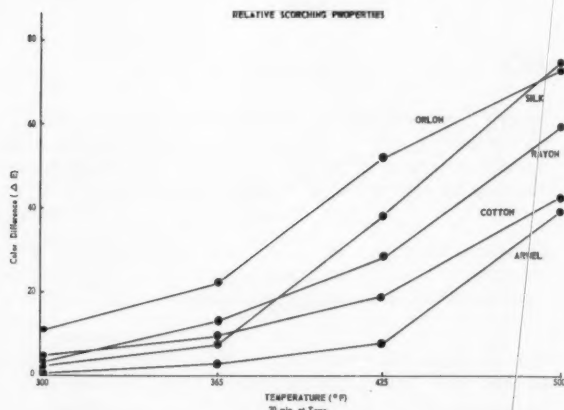


Figure 2

Drying Rate

Figure 3 shows comparison of drying times for a series of similar fabrics with various blend levels of Arnel and cotton. It is seen that the 100% Arnel fabric requires 80 minutes to be drip dried while the 100% cotton fabric required over 200 minutes. This faster drying is attributable to the lower moisture regain of the Arnel and is a further advantage to the dyer and the ultimate consumer.

* American Dyestuff Reporter, Nov. 19, 1956.

Wrinkle Resistance

The good elastic recovery of Arnel favors wrinkle resistance in properly constructed and finished fabrics. This property is relatively insensitive to moisture; thus, the smooth appearance of Arnel garments is generally maintained even in the presence of high humidity and perspiration. Dress and sportswear fabrics of Arnel 60/wool and Arnel 60/Corval display exceedingly good wrinkle resistance.

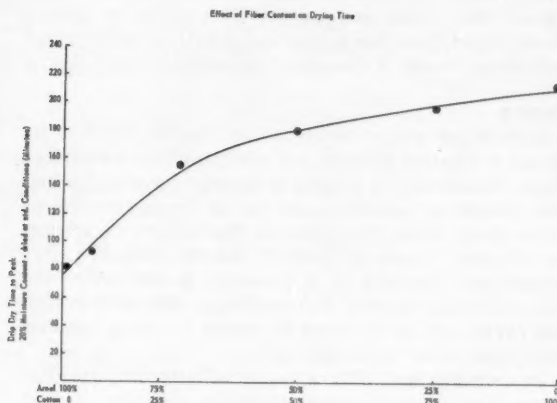


Figure 3

Ironing Properties

Like Arnel, the 60 type is relatively insensitive to heat when it has been properly heat set in finishing. The safe ironing temperature for 100% Arnel 60 fabrics is 450°F. However, blends with certain other fibers may lower the safe ironing temperature because variations in structure which sometimes result in irregular surfaces or predominance of one fiber on the surface of the fabric can appreciably change the safe ironing temperature from what is anticipated.

Desirable Hand

Arnel 60 lends itself to the development of fabrics in blends with many other commercially available fibers where a desirable permanent hand is required.

Williams is manager of product development for Celanese Corp. of America. A native of Salt Lake City, he did his undergraduate work in physical chemistry at the University of Utah, and his postgraduate work at the Universities of Oregon and Pittsburgh. He is a professional engineer whose present occupation is fiber engineering by choice.



Dr. Robert D. Williams

Realizing that hand is a subjective and ambiguous property, we nevertheless feel that most people here will agree that fabrics containing Arnel 60 do have a very desirable hand. The hand has good durability to laundering and dry cleaning.

The ability to obtain desirable and resilient hand is due to the good elastic recovery properties of Arnel and its elastic modulus. The latter property, elastic modulus, is intermediate in magnitude to some of the other fibers. It is lower than cotton but somewhat higher than wool and rayon. This tends to give a firmer hand than the rayon and wool but softer than cotton and some of the other relatively "stiff" fibers.

Dyeing

One of the major assets of any textile fiber is its ability to be used in blends or combinations with other fibers. Versatility in styling is greatly increased when fiber blends or combinations can be cross, reserve, or union dyed. Since the cellulosic fibers have an affinity for different classes of dyestuffs than those used to dye acetate or triacetate, it is practical to dye combinations of blend fabrics of Arnel triacetate with cotton and rayon in a wide range of shades by cross, tone on tone, reserve or union dyeing.

In a similar way, Arnel has an affinity only for disperse type dyestuffs and therefore provides styling potential in blends with certain of the acrylics which have a marked affinity for cationic or basic dyes. Arnel 60 also offers the same styling flexibility, since it has the same selective dyeing properties of regular Arnel.

Ease of Care

Specific properties have been enumerated, including wrinkle resistance, pleat and crease permanence, safe ironing temperature, and dimensional stability. The composite of these properties makes for ease of care garments; that is, they can be laundered or dry cleaned and require little ironing with crease and pleat retained. Of course many other properties could probably be added to this list, such as freedom from pilling and crocking, satisfactory light, gas and ozone fastness, ease of soilage removal, and so forth. These properties have not been discussed but are inherent in certified Arnel 60 fabrics.

We wish to emphasize that most Arnel 60 fabrics may not only be drip-dried to obtain ease of care properties, but they may also be tumble dried, thus permitting real ease of care properties. The dimensional stability and maintenance of appearance even with tumble drying is a valuable attribute.

Surface Characteristics

It was stated previously that Arnel 60 was different from regular Arnel in strength and surface characteristics. The surface of Arnel 60 provides two distinct advantages in staple applications. Its natural appearance provides a semi-dull luster without the use of pigment, and it provides sufficient interfiber cohesion for satisfactory carding, drawing and spinning processing with only the natural crimp present in the fiber.

Tensile Properties

Since the strength of Arnel 60 is nearly twice that of Arnel, appreciably finer count yarns may be spun (Table 1). This higher fiber strength is translated into higher strength spun yarns. Figures 4 and 5 show the comparative strength of Arnel versus Arnel 60

Table 1
TYPICAL TENSILE PROPERTIES OF ARNEL 60

	Arnel 60	Arnel Staple
Tenacity-g/d		
23°C.-65% R.H.	2.1	1.2
23°C.-Wet	1.5	0.8
Elongation-%		
23°C.-65% R.H.	25.0	34.0
23°C.-Wet	36.0	45.0
Approx. Yield Stress-g/d		
23°C.-65% R.H.	1.0	0.7
23°C.-Wet	0.5	0.3
Modulus-g/d		
23°C.-65% R.H.	49.0	28.0
23°C.-Wet	28.0	13.0

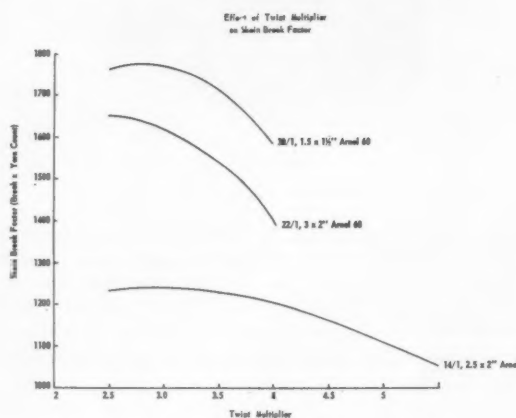


Figure 4

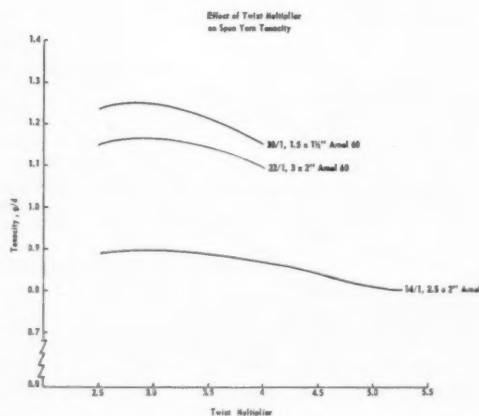


Figure 5

spun yarns at various twist multipliers. The approximate spin limit for 1.5 denier per filament Arnel 60 is 35/1 c.c. In blends with some of the other fibers, this spin limit may be extended. This is particularly true in blends with fine denier rayon where up to a 50/1 c.c. yarn has been spun. Typical properties of various Arnel 60 spun yarns are shown in Table 2. Thus the availability of the higher strength Arnel fiber extends

with appropriate applications to lighter weight fabrics. In blends with cellulose, shirtings and print cloths are practical. Tropical fabrics may be produced in a variety of blends.

The knit example is straightforward demonstrating an extension from 16/1 cc yarn using Arnel to 38/1 cc using Arnel 60. The higher strength and availability in 1.5 dpf made this possible. The woven example is

Table 2
TYPICAL PROPERTIES OF ARNEL—60 SPUN YARNS

	Yarn Count	Twist/Inch	Lbs. Skein Break (Av.)	Skein Break Factor	Single End Gram Break (Av.)	Elongation (%)	Yarn Tenacity (g/d)
100% 3.0 x 2" Arnel 60	22/1	12.9 z	74.0	1629	284	12.4	1.18
100% 1.5 x 1½" Arnel 60	30/1	20.5 z	55.7	1673	205	11.7	1.16
70% 1.5 x 1½" Arnel 60 30% Combed Peeler Cotton	30/1	20.5 z	66.2	2039	223	6.5	1.30
70% 1.5 x 2" Arnel 60 30% 1.5 x 2" Dull Rayon	30/1	19 z	69.4	2084	244	13.3	1.38
65% 3 x 2" Arnel 60 35% 64's, 2" Wool Top	20/1	15.8 z	58.8	1187	262	8.3	1.00
70% 3 x 2" Arnel 60 30% 3 x 2" S. D. Fortrel	20/1	17 z	97.7	1940	374	15.4	1.40

In order to emphasize the potentiality of extension of Arnel fabrics to lighter weight fabrics containing Arnel 60, we are reproducing the constructions of two Arnel fabrics. These fabrics are described as follows:

Arnel Knit

18 cut jersey knit
16/1 cc yarn
70% 2.5 dpf x 1½ inch Arnel
30% combed cotton
Weight—5.0 oz./yd.²

Arnel Woven

30/1 cc yarn
70% 2.5 dpf x 1½ inch Arnel
30% cotton
2/2 RH twill
Weight—3.9 oz./yd.²

Discussion

Following the presentation of the prepared paper, there was a question and answer period during which the speaker answered questions from the audience. Dr. A. Frank Tesi, Celanese Fibers Co., served as moderator.

W. E. ROSS (Rayflex, Inc.): Is Arnel 60 available as filament as well as staple fiber? Can you give us a comparison of tensile strength with ordinary acetate?

TESI: Arnel 60 will be produced as staple at 1½ and 3 deniers per filament at this stage. The tensile strength of ordinary acetate is about 1.3 as compared with 2.1 for Arnel 60.

E. FREEDMAN (R. H. Macy & Co.): What can you tell us regarding the relative flammability of Arnel 60?

WILLIAMS: It is the same as Arnel. In all the Arnel 60 or Arnel used in regular garments, flammability has been of no great concern.

FREEDMAN: How does one differentiate in the laboratory between Arnel 60 and Arnel?

WILLIAMS: I think you can differentiate very easily by looking at it microscopically because of the dif-

ferent surface characteristics. The Arnel 60 is a rounded cross section, and the Arnel is lobular.

J. B. GOLDBERG (Textile Consultant): What is the selling price of Arnel 60 as compared with the price of Arnel?

WILLIAMS: Arnel staple in 2½ denier is about 55 cents, I believe. Arnel 60 in 3 denier is 65 cents; in 1½ denier, 75 cents.

W. PAYSON: I have found that, in working with ordinary Arnel, that our abrasion qualities, even with about 75% Arnel in the fabrics, were about 10% less than with polyester or viscose rayon fiber. With Arnel 60, would it be any better?

WILLIAMS: Unfortunately, the answer is no.

GOLDBERG: If one were interested in making a blend of rayon and fine Arnel yarn, would there be any advantage in using Arnel 60 in place of ordinary Arnel, particularly if you blend it with a high tenacity staple such as American Viscose's Excel, for example?

WILLIAMS: Yes, you could get higher strength yarns with Arnel 60 than you could with Arnel blended with the same rayon fiber.

Challenge of Manmade Fibers Theme of AATT Annual Meeting

The challenge of modern fiber technology will be the theme of the annual meeting of the American Association for Textile Technology to be held as an all day conference at the Hotel Commodore, New York City, on February 8, 1961, according to Cameron A. Baker, president. This will be the first annual meeting of AATT under its new constitution adopted early this year which provides for the operation of chapters and an expanded program of activities.

Dr. Kurt J. Winter, vice-president of AATT and chairman of the Technical Council, said the Council chose this theme because of the impact of an increasing number of new fibers and fiber modifications on all textile interests from the producer to the consumer. He said that close to 1000 different names are in use to describe the world's current output of natural and man-made textile fibers and the number is increasing. New responsibilities for the proper use and processing of these fibers in all types of fabrics to achieve satisfactory performance and consumer acceptance of the final product have combined to create a challenge for everyone concerned, Winter declared.

Reeves Takes Over Curon

Reeves Brothers, Inc., will take over the entire manufacturing, laminating and selling of Curon foam from Curtiss-Wright Corp., makers of Curon, according to a joint statement by both companies. In January of this year Curtiss-Wright appointed Reeves as sales agents for its Curon to the apparel trades. Curon is a multicellular foam made principally from an isocyanate chemical. Reeves, in the near future, plans to move the foam making operation from Quehanna, Pa., to a plant in the south located more conveniently to the furniture and carpeting industry. Sales operations will be conducted from New York City.

Consumer Protection

The textile and clothing section of the American Home Economics Association is in wholehearted agreement with the recent textile legislation and new textile standards as valuable aids to consumers. The home economists expressed regret that, in certain segments of the textile industry, there has been opposition to the Textile Fiber Products Identification Act, a Federal law requiring identification of the fiber in textile products, and to American Standard L22, promulgated by the American Standards Association. Compliance with L22 is voluntary with each manufacturer. Compliance with the Textile Fiber Products Identification Act is mandatory.

The conference program will have two main objectives: (1) to help eliminate confusion brought on by the rapid expansion in fiber technology and an increasingly more complex fiber terminology; and (2) to clarify the responsibilities of producers, processors, distributors, consumers, launderers and dry-cleaners in the use of new and improved fibers and their end products.

The meeting will be open to all members of the textile industry. It will feature a series of four panels covering the following broad areas of interest: retailing, fabrication of end products (apparel, industrial, home furnishings), converting, and mill operations. A speaker will outline the effect of fiber growth in each special area and panel members will be drawn from related fields in order that the broadest possible point of view will be represented in the discussion. Full details of the program will be announced later.

Albert E. Johnson, a director of the Association and director of Trade Relations of the National Institute of Drycleaning, has been named general chairman of the meeting. The administrative chairman will be Erb Ditton, a former president of AATT and a textile consultant. The program chairman will be A. H. McCollough, publisher of Modern Textile Magazine, official publication of AATT.

New Hunter Acquisition

James Hunter, Inc., southern subsidiary of James Hunter Machine Co., has acquired the patents and rights to cotton opening and cleaning equipment made by the Textile Machinery Division of the Cen-Tennial Cotton Gin Co. This equipment consists of the opener-cleaner licensed by the Southern Regional Research Laboratories of the U.S. Agriculture Department, and further developed and mill-tested by Cen-Tennial; the Cen-Tri-Vac cleaner, which utilizes a gentle vacuum to prevent trash re-entering the stock, and the Cen-Tennial Textile separator, designed to perform both a condensing and cleaning operation on textile fibers.

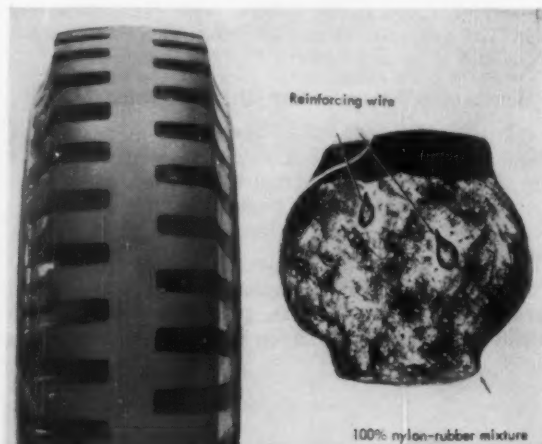
Whitin Expands Research

To effectuate its expanded research and development program, Whitin Machine Works has appointed E. Kent Swift, Jr., as vice president-research and development, it was announced by J. Hugh Bolton, Whitin president. Swift will be assisted by Dr. Zoltan S. Szaloki, recently named director of research. Whitin has not yet named its director of development. Bolton also announced the appointment of Norman F. Garrett as executive vice president of the corporation.

The company also has announced receipt of new orders, including: 9 model M6 even-draft drawing frames, for Washington Mills Co.; 4 drawing frames of the same model, for Blair Mills; 8 model H1 super lap machines, for Greenwood Mills; and 5 model N spinning frames, for Ballston Yarn Mills, Inc.

New 'Grizzly' Tire

The Bearcat Tire Co. is making its new "Grizzly" tire, for off-the-road use on fork trucks, front dumpers, cranes and similar equipment. It is designed to replace pneumatics and laminateds. A new material, known as Homogenized Tough Flex, and consisting of 100% new and virgin rubber and nylon, is used in the tire. The material, set into the mold as a uniform mixture, requires only two light, flexible wire bands for reinforcement. Use of the new material is said to make possible a solid tire with a pneumatic-like ride to protect equipment from shock.



View of Grizzly tire (left)
and cross-section (right)

Virginia Mills

(Continued from Page 22)

and Schoeberlein is to place Virginia's production and styling skills at the disposal of the New York converter trade.

"We are," says Bob Hornstein, "a converter-minded outfit, and it is our aim to work closely with our converter customers in pioneering in new fashion effects. We believe that we can profitably fill the gap for converters who want high style fabrics at reasonable prices, between the big slow-moving mill interested in long runs and the small Paterson or Pennsylvania mill whose ability to turn out short runs quickly is handicapped by a high price tag."

Teamwork with Converters

It follows from this conception of Virginia's place in the market that the New York sales and styling staff works in tight, companionable teamwork with the mill's converter customers. Bob Hornstein, Bill Smith and the other salesmen frequently take stylists Steiger and Schoeberlein along with them to confer with converter-customers. The converters tell the stylists what they want, look at samples shown to them, and by a process of close conference and flexible exchange of ideas work out the specifications for fabrics which Virginia's customers think will make a hit with their customers, the garment manufacturers and the buyers of drapery and upholstery cloths. Hornstein sums up this intimate working relationship with the converters by saying, "You cannot style from an ivory tower. You have to go out and give practical, expert help to the converters in developing new fabrics. Here at Virginia Mills we believe that we are uniquely qualified to give this kind of service. It's one of our strong points in being at once a large,



A. D. Williams

He is vice president in charge of sales

substantial, well-equipped mill, yet small enough to be flexible and varied in our production."

An important part of this flexibility in production and willingness to help customers develop new fabrics, the mill back in tiny Swepsonville is kept busy. During the past two years, since Virginia has established its own sales office, the mill has woven thousands of different fabrics. Last month there were over 200 different numbers in production, not including samples.

Optimistic about Future

Julian Baker, as president, and Bob Hornstein, as the man in charge of sales to New York converters, are cheerfully confident that Virginia's marketing strategy is one that has powerful forces in textiles pulling on its side. They feel that present trends in textiles are working for them. It is one of the truisms of textiles today, repeated endlessly wherever millmen and converters gather for shoptalk, that the era of staple numbers and long runs seems to be decisively ended. Variety of styling is the key word today in fabric marketing. Garment manufacturers want a variety of patterns and constructions in the goods they buy. Curtain and drapery distributors are of the same mind; and even the furniture makers, customers for upholstery fabrics, demand variety and constant change in the cloths they require to cover their products.

This being the case, Virginia Mills' management cannot help but be optimistic about the future. They consider themselves big enough to compete successfully with the big outfits with regard to economy of operation; and they regard themselves, as if by no means small, then at least possessing the flexibility and style inventiveness that is often a telling advantage of the small mill. ■



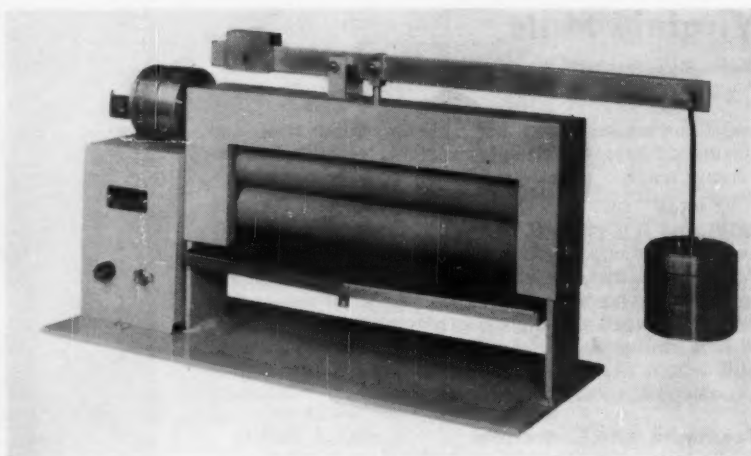
John R. Nicks

Treasurer, Virginia Mills

New Lab Wringer & Padder

Atlas Electric Devices Co. announces a new Model LW-1 Wringer Unit designed to meet the precise requirements of laboratory testing. This new wringer is equipped with 2- $\frac{1}{8}$ " diameter by 12" long neoprene rubber rolls having a durometer hardness of 75 \pm 5 speed so that the specimens pass through the rolls at a rate of 1.0 \pm 0.1 inches per second. Dead-weight loading, variable from 5 to 100 lbs. is provided by a balance arm and removable weights.

Accessory equipment is also available which permit its use as a small controlled laboratory padding unit. For further information write the editors.



TEXTILE — NEWS BRIEFS

Celanese Fabric Report

Miss Elizabeth Stout, fabric coordinator of the Celanese Fabric Library, has prepared a fabric digest report featuring outstanding fabrics woven of Celanese Arnel triacetate blends for resort and summer, 1961. A second fabric digest report, showing knits, stripes and seersuckers, will be distributed shortly. Readers interested in obtaining copies are invited to write the editors.

Lindly Foreign Sales

Lindly & Co., Inc., reported that almost half its sales this year will be made to foreign textile producers. The firm is an electronics manufacturer and specializes in process control and inspection devices for the textile industry. Foreign response has been so good, the company said, it has opened a European technical service office.

Columbia Research

Columbia Cellulose Co., Ltd., of Canada plans to build new research facilities adjacent to its Prince Rupert pulp mill, in British Columbia, which produces sulphite acetate and viscose pulps for manufacture into textiles, chemicals and plastics. The new lab will provide research and development facilities for both the Prince Rupert and the Celgar Kraft mill, near Castlegar, B.C.

Fiber Glass Fabrics

Iselin-Jefferson Co., Inc. and Shelby Mills, Inc., plan to produce and distribute fiber glass decorative fabrics, starting in the 1961

second quarter. Additional manufacturing space to house a modern coronizing unit for the processing of fiber glass yarn will be installed at Shelby Mills.

National Starch Lab

National Starch and Chemical Corp. has opened a new textile service laboratory in the headquarters of the Southeastern Division at 87 Haynes St., N.W., Atlanta, Ga. Howard M. Smith is in charge of the new lab.

New Hartford Plant

Hartford Fibres Co. has opened its new plant in Rocky Hill, Conn., for the manufacture of Zantrel Polynosic rayon. The cellulosic fiber, formerly a European import, is now being produced in the U.S. Hartford has published a comprehensive technical brochure on Zantrel Polynosic rayon, describing its properties and performance qualities. For copies of the brochure write the editors.

New Fiber Glass Plant

Clark-Schwebel Fiber Glass Corp. will build a \$3,000,000 fiber glass weaving and finishing plant in Anderson, S.C. The initial 160,000-square foot, one-story, air-conditioned building on a 20-acre tract, will have approximately 400 looms. It is designed to permit for expansion to twice its original size.

Fancourt to Expand

W. F. Fancourt Co., Philadelphia textile chemical manufacturer, has acquired a 10-acre tract at Greensboro, N.C., for the expansion of its entire operation. A three-story building will be constructed, with completion slated for late summer of next year. The new plant will supplement all Fancourt laboratory and manufacturing operations in Philadelphia and will incorporate company offices now maintained in Burlington, N.C.

Tait Names Agent

Tait Yarn Co., Inc., Lincolnton, N.C., manufacturer of combination and novelty yarns for the knitting and weaving trade, has named Collingwood, Ibach and Co., Charlotte, N.C., as Tait sales agent in North and South Carolina and Virginia.

Textile Leathers

Charles Bond Co. has issued its new catalog (No. 1-160) on textile leathers. The catalog contains information and specifications on belting, sundries for looms, and accessories such as picker sticks, belt dressing, cement, etc. For free copies of the catalog write the editors.

Saco-Lowell Sales

Expansion of the Liberty and Norris plants of Woodside Mills will be accomplished by installation of new Saco-Lowell equipment, according to J. Woodward Hubbard, vice president-sales, Saco Lowell Textile Machinery Division. The Liberty plant will add 57 combers, SJ-3H spinning frames, high-speed Versa-matic drawing, 18 by 42-inch card coilers, and miscellaneous opening and picking equipment to give additional capacity to combed goods. The Norris plant, specializing in print cloth, will add to the number of Saco-Lowell spinning frames now in use.

Mexican Nylon Output

Celanese Mexicana, S. A., an affiliate of Celanese Corp. of America, plans to produce nylon tire cord and expand its facilities for turning out filament nylon yarn for the textile trade. Nylon tire cord output will start during the 1961 first quarter with facilities for producing 2,000 tons annually. New facilities at Ocotlan, in the State of Jalisco, will increase nylon yarn capacity 1,000 tons a year, approximately doubling existing output.

Jacobs Reorganizes

Operations were started in September by E. H. Jacobs Mfg. Co., recently formed to consolidate the E. H. Jacobs Northern Division and the E. H. Jacobs Southern Division of The Bullard Clark Co. Under the new setup, all manufacturing of Jacobs loom parts are being carried on in Charlotte, N. C. The new firm, incorporated in North Carolina, will occupy the present E. H. Jacobs Southern Division manufacturing facilities at 3600 South Boulevard in Charlotte where the property has been expanded and renovated.

Jacobs has manufactured and sold parts and supplies to the textile industry since 1869. By its consolidation the firm expects to provide better service to the textile industry. The former vice president of Bullard Clark, W. R. Muller, is the president of the new corporation. Two other former vice presidents of Bullard Clark, C. W. Cain, Jr. and L. L. Froneberger, Jr., are vice presidents of the new company and are also two of its directors. Manufacturing, sales and service personnel will remain essentially the same.

AATT to Meet Dec. 2 in Greenville

A meeting of the Piedmont Chapter of the American Association for Textile Technology will be held at the Hotel Poinsett, Greenville, S. C. on December 2. Dr. Robert Edwards, president of Clemson College, will speak on the role of textile schools in industrial research. The meeting will start at 6:30 P.M., and a dinner will be served.

All persons interested in the textile and allied industries are invited to attend. Reservations can be made by contacting Dr. Frank Tesi, Celanese Corp. of America P. O. Box 1414, Charlotte, N. C.; telephone: Franklin 7-7411.

Bachmann Changes Under Way

Indian Head Mills, Inc., plans to reorganize its recently-acquired Bachmann Uxbridge Worsted Co. on a sound, profitable basis. The plan involves consolidation of all manufacturing operations at the Talladega, Ala., and Cedartown, Ga., plants. The declining volume of profitable business has made it necessary to discontinue operations of the Uxbridge and Rivulet, Mass., and Putnam, Conn., plants. It is also planned ultimately to end operations at Macon, Ga. The company said every effort is being made to dispose of these plants to other types of industry in order to provide continued employment opportunities for personnel.

New Nopco Laboratory

Nopco Chemical Co., as part of its current expansion and development program, has installed a new laboratory for use of its Industrial and Fine Chemicals Division. The lab is equipped to duplicate many of the processes found within industry.

NAWM Names Asnip

George Asnip, vice president and general manager of Excelsior Mills, Inc. (worsted division), has been named chairman of the executive committee of the board of directors of the National Association of Wool Manufacturers. He succeeds J. H. Stursberg, Livingston Worsted Mills, who continues as a committee member.

Eastman Research Grows

Tennessee Eastman Co.'s research program has been expanded through the creation of a new company, Eastman Research A.G. the new company is a Swiss corporation with offices and laboratories in Zurich, Switzerland. Facilities for the new company will be ready in early spring of 1961.

Allied Chemical Display

A two-story-high display was staged by Allied Chemical at the Decoration and Design '61 Show on October 8-16 at New York City's 7th Regiment Armory. The display, based on a collection of authentic Biedermeier furniture, soared 40 feet above the floor. The old pieces were refinished with modern urethane cushioning and Caprolan nylon fabrics.

U.K. 1961 Knitting Show

Although it is still 13 months away, organizers of the 1961 International Knitting Machinery & Accessories Exhibition in Manchester, England, to be held Oct. 11-21, report heavy demand for display space. Some 72,000 square feet of stand space has already been applied for and applications are still being received. Of the 170 exhibitors, over half will be from overseas. *Readers wishing to reserve space or to obtain further information about the exhibition are invited to write directly to Textile Recorder Exhibitions Ltd., Old Colony House, South King St., Manchester 2, England.*

Water Repellency Guarantee

The Cravenette Co., U.S.A., manufacturers of Cravenette brand water repellent chemicals, has announced a life-of-garment guarantee for durable water repellent performance through its new "Certified Quality Guarantee" program. To make the guarantee operative, 5,180 Cravenette weatherizing stations have been established in most cities throughout the U.S. These stations are now ready to reprocess, without charge to the consumer, if the Cravenette durable water repellency does not withstand repeated dry cleanings as certified by the quality guarantee program.

Riegel Paper Plans Merger

Agreements proposing the mergers of Fairtex Corp. and Branson Yarn Co. into Riegel Paper Corp. have been signed by the boards of directors of the three companies. Fairtex and Branson Yarn, headquarters in Charlotte, N.C., had a combined net worth of \$337,000 as of June 30, 1960. They manufacture all types of metallic yarns and metallic chips. Riegel produces flexible packaging materials, bleached paperboard, pulp, folding cartons and specialty papers. This merger is contingent upon consummation of a previously proposed merger of Lassiter Corp. (Fairtex and Branson Yarn are Lassiter affiliates) into Riegel. Lassiter and Riegel stockholders were scheduled to vote on this merger in late September.

Talcott Midwest Region

James Talcott, Inc., has formed a Midwest Region, under the direction of Russell R. Campbell, regional vice president. It consists of Talcott district offices in Chicago, Detroit and Minneapolis. Campbell, also named to the company's executive committee, has been succeeded as general manager of the Chicago district by Russell B. Donahue.

Caustic Soda Expansion

Solvay Process Division, Allied Chemical Corp., plans to expand its mercury cell chlorine-caustic soda capacity at its plant in Brunswick, Ga., by about 100 tons a day. The additional production, Solvay said, is needed to meet increasing requirements of consumers in the southeast, particularly in textile production and in pulp and paper operations. It will be the second expansion of the Brunswick facility since it was constructed in 1956.

(Continued on Page 82)

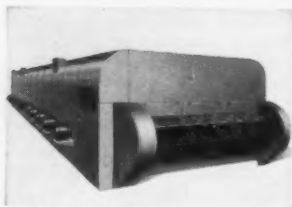
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FIBRE PROCESSING MACHINERY

by
SARGENT

From Bale Opener through Dryer, Sargent's modern fibre processing system gives you completely automatic continuous production . . . an uninterrupted straight-line flow of quality-protected fibres at an economy you cannot afford to overlook. Let us tell you more.

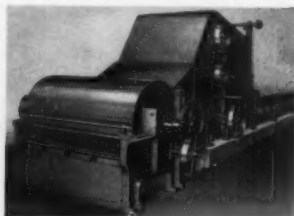
FEEDERS • OPENERS • PICKERS • BLENDERS
WASHERS • DRYERS • TOP & YARN HANDLING
AND SPECIAL PURPOSE MACHINERY



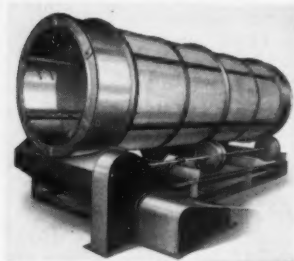
STOCK DRYER
Leads all dryers for performance and dependability on scoured or dyed wools, cotton, synthetics.



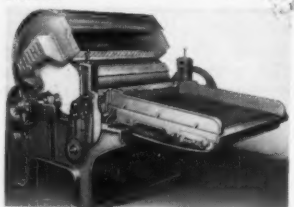
FIBRE PROCESSING SYSTEM
Section of recent installation showing high economy, complete dependability. Fibres are not handled from opening to drying.



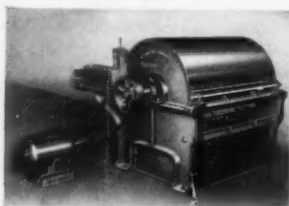
BALE OPENER AND PICKER
Continuous opening, picking and feeding, cotton linters or staple. Excellent on machine-picked cotton.



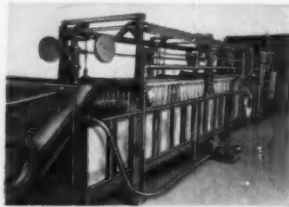
SQUIRREL CAGE DUSTER
Continuous dusting of heavy grease wools, waste, rags. Also very efficient blender.



WET AND DRY PICKER
Highly versatile—for fibres after bleaching, after dyeing. Works equally well with wet or dry fibres.



MIXING PICKER
For continuous blending—all fibres.



STAINLESS STEEL WASHER
For scouring, bleaching, acidifying.

AT THE SHOW, ATLANTIC CITY, Booth 470-473

C. G. SARGENT'S SONS CORPORATION

Graniteville, SINCE 1852 Massachusetts

PHILADELPHIA • CINCINNATI • ATLANTA • CHARLOTTE • HOUSTON • CHICAGO • DETROIT • TORONTO

For the DYER and FINISHER

'Easy Care' Finishes

"Easy care" finishes were applied to 41% of the yardage in outlets comprising the major share of cotton's domestic markets in 1959, according to a National Cotton Council survey. Production of easy care fabrics during last year totaled about 3 billion linear yards. Of the total, cotton accounted for 63%; 100% synthetic fabrics for 18%, rayon for 13%, cotton-synthetic blends for 4%, and synthetic blends for 2%. An estimated 1.89 billion linear yards of easy care cottons were produced. The survey said that production of resin finished broad woven cotton fabrics increased from 600 million linear yards in 1955 to almost 1,900 million yards in 1959.

Putnam 'Ultra Lumatex'

Putnam Chemical Corp. has developed Ultra Lumatex, a new oil in water printing system. The system incorporates all necessary resins in the Lumatex color, combining simplicity of operations and better fastness than has heretofore been possible with pigment printing, particularly fastness to crocking and dry cleaning, Putnam says. For further information write the editors.

Chemical Firm Expands

Manufacturer's Chemical Co., Inc., has moved to new, expanded plant and research facilities at 1450 Ferry Ave., Camden, N. J. The company produces softeners, flame retardants, water repellants, spinning oils, hosiery finishes, detergents, binders for nonwoven fabrics, and latex backings. The company, because of the increased capacity, is adding more jobbers to service the textile industry. For further information write the editors.

New Alginates Offered

Francolor, Inc., Woonsocket, R. I., has been appointed exclusive sales agent for Alginates Maton of Paris, a producer in Europe of alginates specially prepared for use in dyeing and printing. Francolor announces that it will be able to offer the American dyeing and finishing industry new types of alginates designed to give optimum results when used in conjunction with available technical formulas recommended by dyestuff manufacturers calling for the use of alginates. For further information write the editors

New 'Colour Index'

The "Colour Index, Second Edition" nomenclature has been adopted exclusively by "Synthetic Organic Chemicals, U.S. Production and Sales," a publication of the U.S. Tariff Commission, and by the Bureau of Customs on American offerings and importations. The index is published by The Society of Dyers and Colourists (British) and the American Association of Textile Chemists and Colorists in four volumes totaling 3,152 pages. For further information write the editors.

Permanent Wool Creases

Wool slacks and skirts are permanently creased or pleated by a new chemical treatment devised at the Wool and Mohair Laboratory of the U.S. Department of Agriculture's Research Service in Albany, Calif. The creases are reported to stay through long wear and exposure to rain and high humidity. If the fabric is suitably shrink-proofed, the creases remain after machine washing. USDA chemists found that dilute solutions of ethanalamine—a widely available, safe, inexpensive chemical—will put the long-lasting creases in wool. A 0.5% to 2.0% solution of the chemical in water, with a very small amount of detergent to facilitate wetting, is applied either by spraying or dipping after which the damp fabric is steampressed. The treatment is applicable to fabrics shrink-proofed by epoxy-polyamide resins.

New Rayon Fabric Finish

Successful application of a non-resinous finishing process to rayon cloth has been announced by Joseph Bancroft & Sons Co. The treated fabrics will be produced and marketed under the firm's "Everglaze" and BanCare" trademarks. The new process is said to make possible the production of no-iron rayon fabrics and garments with a wash-and-wear rating between No. 4 and No. 5, making them commercially competitive with the finest cottons and synthetics on the market. Bancroft reported that the American Institute of Laundering has awarded its seal of approval to rayons produced by the new non-resinous process.

Textile Dryer Bulletin

Andrew & Goodrich, a division of Midland-Ross Corp. has issued a 12-page bulletin describing its extensive line of "Dryers for the Textile Industry." The line includes radiant heat, tenter, dye range (main and predryer) dryers; curing and heating equipment; loop and stock dryers, and accessory equipment. For copies write the editors.

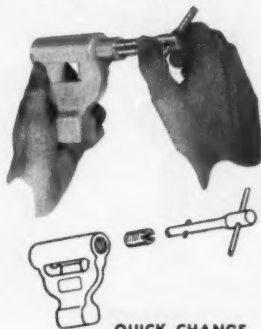
NOVEMBER, 1960

NEW PLASTIC LOOM PICKER



by
GARLAND

EXCLUSIVE!



**QUICK CHANGE
BUSHINGS AND
SPECIAL CHANGER TOOL.
ONLY A FEW TURNS TO
REMOVE AND REPLACE.**

It's American made!
It costs less than imports!
It wears longer!
It gives higher efficiency... by test!
**IT'S THE NEW GARLAND CUSTOM
MOULDED HIGH DENSITY
POLYETHYLENE REVERSIBLE DROP
BOX PICKER, THAT YOU'VE BEEN
HEARING SO MUCH ABOUT.**

If you haven't seen, priced
and tried this revolutionary
plastic picker by Garland, write,
wire or phone today.

If you don't, you'll miss out on
a tremendous price and
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WRITE FOR COMPLETE INFORMATION



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Manufacturers of PLASTIC & RAWHIDE LOOM PICKERS • SPONGE LEATHER BUNTERS
LEATHER PRODUCTS • ROD LUBRICANT • NYLON AND RAWHIDE HAMMERS & MALLETS

74 WATER STREET • SACO • MAINE

ORLON SAYELLE®

ACRYLIC FIBER

package-dyed by Globe

REACHES NEW HEIGHTS OF COLOR LOVELINESS



Garments made from "Orlon Sayelle"®—lively, resilient, with a natural, wool-like touch—take on a distinct new look of quality and elegance when good styling is coupled with superior yarn dyeing. Give your fashions the competitive edge of long-lasting beauty and sales appeal by specifying "Orlon Sayelle"®—package-dyed by Globe.

Globe does package dyeing on tubes, skein and warp dyeing, warp bleaching and sizing.

Yarns processed include cotton, worsted, linen, blend and novelty yarns, and all synthetics including Arnel®, Creslan®, Orlon®, and Zefran®.

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TEXTILE

NEWS BRIEFS

Acrylate Ester Plant

Celanese Corp. of America plans a major expansion at its Pampa, Texas, plant for the production of higher acrylate esters, members of the petrochemical family used by the textile, paint, paper, rubber and many other industries. The planned facilities will have a capacity for producing annually more than 14 million pounds of 2-ethylhexyl acrylate, butyl acrylate and glacial acrylic acid.

Eastman International Unit

The marketing organization for Tennessee Eastman Co. and Texas Eastman Co., manufacturing divisions of Eastman Kodak Co., is being expanded through the recently formed International Division. The new Eastman marketing unit will be responsible for the sales and service of fibers, chemicals and plastics, manufactured by the Tennessee and Texas divisions, in all countries except the U. S. and Canada.

Hanes Canadian Mill

Hanes Hosiery Mills Co. will construct a mill in Toronto, Ont., Canada, during 1961 to manufacture seamless stockings. The Canadian unit will be designed along the same lines as Hanes' new Weeks Division, now nearing completion in Winston-Salem, N. C., and which is a major part of the company's \$30 million expansion program. The program is aimed at increasing Hanes' output of seamless stockings in the U. S. from 50 million to 100 million pairs within 3 years.

Burlington International

Formation of Burlington International A.G., Glarus, Switzerland, has been announced by Spencer Love, chairman of Burlington Industries, Inc. The growing potential of the European textile markets led to the formation of the new company, Love stated. Walter E. Greer, Jr. senior vice president of Burlington Industries, is president of Burlington International.

Buy Whitin Equipment

Caldwell Cotton Mills Co., Hudson, N. C., will install three Whitin M-6 even-draft drawing frames, Whitin Machine Works reported. Each of the frames will have four deliveries. Whitin also has received an order from Whitehall Mills, Whitehall, Ga., for two Whitin American system Monarch spinning frames.

Knitting Textbook Available

"Principles of Machine Knitting" by John Chamberlain has just been re-issued by the Textile Institute. The book describes the basic weft-knitting stitches, discusses some of the possibilities of the different kinds of weft-knitted stitches; descriptions of machine-made garments, including circular knitted and fully-fashioned hosiery and fully-fashioned underwear and outerwear, stitch shaped garments, neckwear and gloves. Copies may be ordered directly from the Institute, 10 Blackfriars St., Manchester 3, England.

To Represent Paul Whitin

Aberfoyle Manufacturing Co. has concluded an arrangement with the Paul Whitin Corp., Gilbertville, Mass., in which Aberfoyle will represent the Whitin firm's specialized and newly-developed long staple synthetic yarns in both 100% and blends. Aberfoyle will particularly stress Orlon Sayelle, a new development in the knitting industry. Aberfoyle also will market in conjunction with The Dow Chemical Co. a blend of Zefran and linen tailored for luxury items.

New Polypropylene Plant

AviSun Corp. has selected New Castle, Del., as the site of its new 100 million pound-per-year polypropylene plant. The site is adjacent to AviSun's present 10 million pound-per-year film plant and its fiber plant on a 214-acre industrial site. Polypropylene from the new plant will provide the chief raw material for these film and fiber facilities. AviSun also has an option to purchase facilities at Port Reading, N. J., which could provide another 50 million pounds per year of polymer capacity.

Raschel Knitting Books

The National Knitted Outerwear Association has published four books on Raschel knitting. The four books, totaling 294 pages, are:

"Fundamentals of Raschel Knitting," by several authors; priced at \$3, and to NKOA members \$2 per copy.

"Manufacture of Cotton and Wool Outerwear on Raschel Machines," by Charles Rotenstein; priced at \$5, and to NKOA members \$3 per copy.

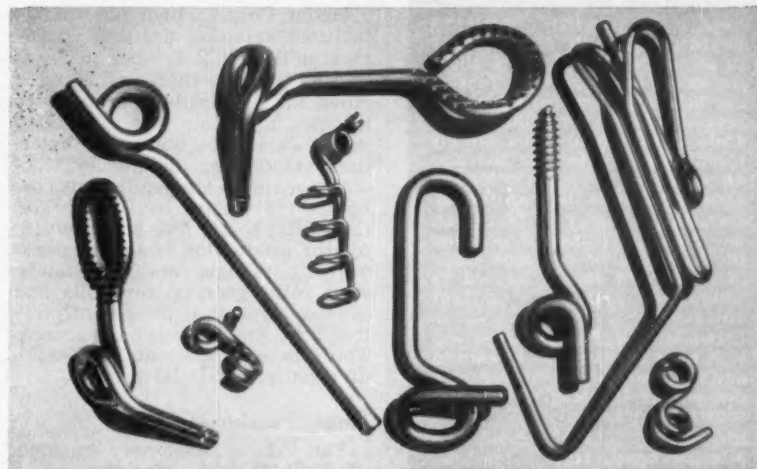
"Lace Manufacture on Raschel Machines," also by Charles Rotenstein; priced at \$4, and to NKOA members \$2.50 per copy.

"Control of Defects in Raschel Fabrics," by A. Reisfeld; priced at \$4, and to NKOA members \$2.50. Copies of all four books may be ordered directly from the Association at 386 Fourth Ave., New York.

WHEN IT COMES TO PROTECTION...



HARD CHROMIUM PLATING



The Leading Name
In Textile Hard
Chromium Plating.

Chromium plating, as does everything else, comes in various qualities, so you owe it to yourself to buy the best protection possible. Our customers expect the best Hard Chromium Plating when they buy Walhard.

During 26 years of successful experience, we have proven that fast, efficient service combined with Hard Chromium Plating "know how" mean "dollars in their pockets."

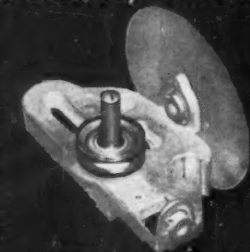
Be sure you are getting quality Hard Chromium Plating — both satin and polished finish — It costs no more and lasts longer.

WALTON and LONSBURY

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POSITIVE, UNIFORM



YARN TENSION



with the NEW

FABRIONICS UNA-MAG

UNA-MAG GIVES YOU UNIFORM TENSION that means higher quality yarn in warping, spinning, winding, knitting, etc.

UNA-MAG DESIGN PERMITS INSTANT TENSION ADJUSTMENT to as much as 100 grams above the weight of the top disc. Tension can be adjusted on each yarn separately or on more than 1,000 ends simultaneously by merely resetting a dial. Tension can also be varied to compensate for the varying distances the yarn travels.

UNA-MAG IS EASILY INSTALLED on any disc-type tension device and the simplicity of operation helps minimize yarn damage caused by roughened and worn contact surfaces.

UNA-MAG IS FLEXIBLE. When you shift from any size yarn or cord to any other size, you simply reset a dial on the Una-Mag to maintain constant tension.

UNA-MAG IS SELF CLEANING. The precision construction of the Una-Mag permits a continuous spinning action on the top disc which prevents the accumulation of grease, dirt, etc. This means fewer maintenance problems and less down time for cleaning or adjusting.



Write for complete details on how FABRIONICS UNA-MAG's uniform yarn tension control can save you time and increase your profits.

FABRIONICS CORPORATION
Box 521 · Huntington, L.I., N.Y.

U.S.I. Polyethylene Plant

A new section of U.S.I.'s polyethylene production plant in Houston, Texas, has gone on-stream. The new installation doubles the capacity of the plant and establishes U.S.I. as the second largest producer of polyethylene in the world, according to Dr. R. E. Hulse, executive vice president of National Distillers and Chemical Corp. and general manager of the U.S. Industrial Chemicals Co., Division. U.S.I.'s total production capacity of petrothene low and medium polyethylene resins is now 300 million pounds annually.

To Double Allfab Output

The Felters Co. has started work on an addition at Millbury, Mass., to more than double production of Allfab, its low-cost synthetic, multi-purpose fabric. The building and equipment will cost about \$175,000. Allfab is a nonwoven, resin-bonded fabric which can be made in almost any weight or thickness, using any fiber, natural or synthetic. It has wide application in the shoe and garment trades, packaging, filtration, for backing of plastics in automobile interiors, and for all types of cushioning and padding. For further information write the editors.

Dixon Moving South

Dixon Corp., which has manufactured spinning drafting equipment in Bristol, R. I., since 1876, has sold its facilities there and plans to move all its textile operations to the South within the next two years. This move will result eventually in the consolidation of Dixon's machinery and equipment now housed in plants in Bristol and Charlotte, N. C., into a single unit for the production of spinning and drafting changeovers, roll stands, steel rolls, gearing, top rolls and saddles, as well as the recently introduced line of cots and aprons. The firm will continue its plastics division in Rhode Island.

Singer Purchases Cobble

The tufting machinery business of Cobble Bros. Machinery Co., Inc., and Cobble Bros. Sales Co., Inc., has been purchased by Singer Manufacturing Co. Singer also acquired the following Cobble subsidiaries: Super Tufter Machinery Co., Gowin Machinery Co., Southern Machine Co., and Cobble Brothers Machinery Co., Ltd., in Lancashire, England. Cobble will operate as a subsidiary of Singer under the direction of the Special Product division. Lewis Card, treasurer and general manager of Cobble for many years, will continue active direction of the business.

Biggest Cotton Use

A record high 1.5 million bales of cotton was consumed in men's and boys' trousers and shirts during 1959, according to data reported in the National Cotton Council's 1960 edition of "Cotton Counts Its Customers." Men's and boys' trousers were the largest user of cotton, consumption for this purpose having doubled that of 1947. A 307,000-bale gain in consumption in work trousers accounted for the major portion of the total increase. A 166,000-bale gain for cotton in men's and boys' shirts, the second largest end-use outlet, was recorded in the 1947-1959 period.

Du Pont N.C. Payrolls

More than \$16,000,000 was put into the economy of North Carolina last year by the two Du Pont plants located in that state, the company announced. Du Pont reported that its payrolls amounted to \$14,362,571 while purchases of goods and services from 929 North Carolina suppliers amounted to \$1,695,631. The company operates a silicon plant at Brevard and makes Dacron polyester fiber at Kinston. Du Pont operates 78 plants throughout the country. The above figures do not include purchases made in North Carolina for plants located outside the state.

Personnel Notes

Raphael Izzo has joined United States Testing Co., Inc., where he will supervise a number of fabric inspection programs.

Herbert W. McNulty has been appointed manager-market research for Allied Chemical Corp.'s National Aniline Division. Dr. Charles K. Lawrence has been named assistant to the director of research and development for Allied Chemical.

Richard E. Reynolds has been promoted to general sales manager of the Film Division of American Viscose Corp. Benjamin Miles has been named administrative assistant to Mr. Reynolds.

Herbert G. Grovet has joined Celanese Fibres Co. as senior knitwear stylist in the Fabric Development Department.

Erik O. Pierson has been appointed works manager of the Saco-Lowell Automotive Division at Saco, Me.

Albert E. Edwards has been named assistant vice president-manufacturing of Textile Machine Works.

(Continued on Page 87)

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarns, staple and tow as reported by the producers in October 1960. All prices are given to change without notice.

CELLULOSIC YARNS

ACETATE

American Viscose Corp.

Current Prices Effective March 22, 1960

Denier & Filaments	Bright and Dull			Spinning Twist		
	Cones	T-Tubes	Warps	Cones & C-Tubes	Warps	
40/11	\$.99			\$.93	\$1.14	
45/14					1.03	
55/14-20	.99	.97	1.00	.93	.87*	
75/18					.90	
75/20	.95	.93	.96	.89	.90	
100/28	.91	.89	.92	.85	.86	
120/32	.82	.80	.83	.76	.77	
150/36					.70	
150/41	.74	.73	.75	.69	.70	
200/54	.70	.69	.71	.66	.67	
240/80				.65	.66	
300/80	.66	.65	.67	.62	.63	

* Tricot Spools Only.

** Standard Twist 2 $\frac{1}{2}$ Additional.

Terms: Net 30 Days.

Celanese Fibers Company

Current Prices Effective March 22, 1960

Acetate Filament Yarn Prices

Bright and Dull

Denier and Filaments	Intermediate Twist			Spinning Twist		
	4 & 6-Lb. Cones	Beams	4-Pound Cheeses	Cones	Beams	0 Twist Tubes
45/13	\$1.12	\$1.13		\$.89	\$.90	.68
55/15	.90	1.00				
75/20	.95	.96			.92	
100/26-40	.91	.92		.85	.86	
120/40	.82	.83		.76	.77	
150/40	.74	.75	.74	.69	.70	
200/52	.70	.71		.66	.67	
240/80	.68			.64		
300/80	.66	.67		.62	.63	
450/120	.66	.67				
600/160	.65	.66				
900/240	.63	.64				

* Tricot beams only. This item with Permchem—\$.05 additional.

37/10 electrical finish available at no premium.

3 to 5 turns on Cones or Beams \$.02 Additional

Over 5 turns—55 denier \$.06 Additional per Turn

Over 5 turns—75 denier \$.04 Additional per Turn

Over 5 turns—100 denier \$.03 Additional per Turn

Over 5 turns—150 denier & coarser \$.02 Additional per Turn

150 Denier 12-TM Tubes \$.73

3 Pound Cheeses \$.01 Less than 4-lb. Cheeses

2-BU and 4-BU Tubes Same price as 4 & 6-lb. cones

Premium for Serving Tubes \$.05

Part Cone Premiums: 2-lb. \$.10

1-lb. \$.10

Under 1-lb. \$.20

Celapern Filament Yarn Prices

Denier and Filaments	Intermediate Twist			Spinning Twist		
	4 & 6-Lb. Cones	Beams		Cones	Beams	
55/15	\$1.37	\$1.38		\$1.31	\$1.32	
75/20	1.34	1.35		1.28	1.29	
100/26	1.28	1.29		1.22	1.23	
120/40	1.19	1.20		1.13	1.14	
*150/40	1.11	1.12		1.06	1.07	
200/104	1.05	1.06		1.01	1.02	
300/80	1.01	1.02		.97	.98	
450/120	.99	1.00		.95	.96	
600/160	.97	.98				
900/240	.94					

* 150/2Z/40 available in all colors. Contact our District Sales Representative for current availability of colors in other denier.

Over 5 turns—55 denier \$.06 Additional per Turn

Over 5 turns—75 denier \$.04 Additional per Turn

Over 5 turns—100 denier \$.03 Additional per Turn

Over 5 turns—150 denier & coarser \$.02 Additional per Turn

Celapern Black Yarn Prices

Effective March 22, 1960

Denier and Filaments	Intermediate Twist			Spinning Twist		
	4 & 6-Lb. Cones	Beams		Cones	Beams	
55/15	\$1.11	\$1.12		\$1.11	\$1.12	
75/20	1.14	1.15		1.08	1.09	
100/26	1.08	1.09		1.02	1.03	
120/40	.99	1.00		.93	.94	
150/40	.91	.92		.86	.87	
200/52	.85	.86		.81	.82	
300/80	.81	.82		.77	.78	
450/120	.79	.80		.75	.76	
600/160	.77	.78				
900/240	.74					

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Acele" Acetate

Bright & Dull

Denier & Filament	Zero Twist			Low Twist			Intermediate Twist		
	Tubes	Beams	Cones	Beams	2 & 4 Lb. % Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Beams	Trms.
45-13	.94	1.02							
55-18	.82	.86							
55-24	.82	.86		.91					\$.99 \$1.00
75-24	.86	.89		.90					.99 1.00
75-50				.92					.97 .98
100-32	.82	.85		.86					.89 .91
120-50	.73	.76		.77					.81 .82
150-40	.66	.69	\$.69	.67	.74	.74	.74	.74	.75
200-60/64	.65	.66		.67	.70	.70	.70	.70	.71
240-80		.66		.67					.69
300-80	.60	.62	.62	.63	.66	.66	.66	.66	.67
450-120	.61	.62	.62	.63	.66	.66	.66	.66	.67
600-160			.62		.65	.65	.65	.65	.66
900-44					.63	.63	.63	.63	.64
900-240	.61**				.63	.63	.63	.63	.64
1800-88					.61	.61	.61	.61	.62
2700-132					.61	.61	.61	.61	.62
3000-210					.61	.61	.61	.61	.62

(A) Regular Twist (2.9 and 5 T.P.I.)—add \$.02 to Intermediate Twist Price.

(B) 1 lb. % Tubes—add \$.02 to 2 & 4 lb. % Tube Price.

** Bright only 2" Tubes.

Color-Sealed

Denier & Filament	Zero Twist			Low Twist			Intermediate Twist		
	Tubes	Beams	Cones	Beams	2 Lb. Twisted Tubes	4 & 6 Lb. Tw. Tbs.	Cones	Beams	Trms.
55-18	\$1.245	\$1.315**			\$1.35	\$1.35	\$1.37	\$1.38	
75-24	1.18	1.28		1.29	1.32	1.32	1.34	1.35	
100-32	1.14		1.23	1.26	1.26	1.26	1.28	1.29	
150-40	1.03	1.06	1.06	1.07	1.10	1.11	1.11	1.12	
200-64					1.04	1.05	1.05	1.06	
300-80	.95	.97		.98	1.00	1.01	1.01	1.02	

(A) Regular Twist—Add \$.02 to Intermediate Twist Price.

** Tricot only.

Black

Denier & Filament	Zero Twist			Low Twist			Intermediate Twist		
	Tubes	Beams	Cones	Beams	2 & 4 Lb. % Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Beams	Trms.
40-13	\$1.215	\$1.285							
55-18	1.045								
75-24	.98	1.08		\$1.09					
100-32	.94		1.03						
150-40	.83	.86	.86	.87			.91	.91	.92
200-60							.85	.85	.86
300-80	.75	.77	.77	.78	.81	.81	.81	.81	.82
450-120					.79	.79	.79	.79	.80
600-160					.77	.77	.77	.77	.78
900-240, 44					.74	.74	.74	.74	.75

(A) Regular Twist (2.9 and 5 T.P.I.)—add \$.02 to Int. Twist Price.

(B) 1 lb. % Tubes—add \$.02 to 2 & 4 lb. % Tube Price.

Specialty Yarns

Cycloset for Tricot

Denier & Filament	Natural			Black			Color-Sealed		
	Cones	Beams	Cones	Beams	Cones	Beams	Cones	Beams	Trms.
40-13 Natural	\$1.07								\$1.14
55-18/24 Natural	.83								.87
75-24 Natural	.87								.90
100-32 Natural	.83								.86

Same Price as Regular Yarn

Same Price as Regular Yarn

Thick & Thin

Denier & Filament	Natural			Black			Color-Sealed		
	Cones	Beams	Cones	Beams	Cones	Beams	Cones	Beams	Trms.
200-64 Int. Twist	\$1.05	\$.99	\$1.15	\$.99	\$1.35	\$.99	\$1.35	\$.99	
200-64 Reg. Twist	1.08	1.09	1.17	1.21					

Terms: Net 30 days. Subject to changes without notice.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* Dupont's Trademark for its acetate yarn.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Current

"Estron" Yarn, Bright or Dull — White

Denier & Filament	Regular Twist			Intermediate Twist			Low Twist			Zero Twist			Tricot Beams		
	Cones	Beams	Cones	Beams	Cones	Beams	Cones	Beams	Cones	Beams	Cones	Beams	Cones	Beams	Trms.
55/13	\$1.01	\$1.02	\$0.99	\$1.00	\$0.93	\$0.94	\$0.82	\$0.87	\$0.88						
75/19	.97	.98	.95	.96	.89	.90									
75/49	.99	1.00	.97	.98											
100/25	.93	.94	.91	.92	.85	.86									
120/30	.84	.85	.82	.83	.76	.77									
150/38	.76	.77	.74	.75	.69	.70	.66								
200/50	.72	.73	.70	.71	.66	.67									

300/75	.68	.69	.66	.67	.62	.63	.60	....	....
450/114	.68	.69	.66	.67	.62	.63	....	....	....
600/156	.67	.68	.65	.66	.62	.63	....	....	....
900/230	.65	.66	.63	.64	....	....	.81	....	....
Heavier	....	....	....	....	....	....	.56	....	....

Current

"Chromspun"—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Twist Beams	Intermediate Twist Cones	Twist Beams	Low Twist Cones	Twist Beams
55/13	\$1.39	\$1.40	\$1.37	\$1.38	\$1.31	\$1.32
75/19	1.36	1.37	1.34	1.35	1.28	1.29
100/25	1.30	1.31	1.28	1.29	1.22	1.23
150/38	....	....	1.11	1.12	1.06	1.07
300/75	....	....	1.01	1.02	.97	.98
450/114	....	....	.99	1.00	.95	.96
900/230	....	....	.94	.95	....	....

Current Prices

"Chromspun"—Black

Denier & Filament	Regular Twist Cones	Twist Beams	Intermediate Twist Cones	Twist Beams	Low Twist Cones	Twist Beams
55/13	\$1.19	\$1.17	\$1.17	\$1.18	\$1.12	....
75/19	1.16	1.14	1.14	1.15	1.09	....
100/25	1.10	1.08	1.08	1.09	1.03	....
150/38	.93	.91	.91	.92	.87	....
200/50	.87	.85	.85	.86	.82	....
300/75	.83	.81	.81	.82	.78	....
450/114	.81	.79	.79	.80	.76	....
900/230	.76	.74	.74	.75	....	....

Prices are subject to change without notice.

Prices on special items quoted on request.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Estron" is a trade-mark of the Eastman Kodak Company.

* Chromspun is a trade-mark of the Eastman Kodak Company.

RAYON

American Bemberg

Current Prices

Regular Production Reel Spun Yarn

Den/Fil	No Turns	Turned* Skeins	8% Turns	High Turn Skeins & Cones	15 Turns	18 Turns
40/30	\$1.49	\$1.95	....	....	....	\$2.08
50/36	1.29	1.55	....	....	....	1.85
65/45	1.22	1.38	....	\$1.61	....	1.66
75/60**	1.11	1.25	....	1.48	\$1.53	1.56
100/74**	1.02	1.15	....	1.40	1.45	1.51
125/90	1.01	1.12	\$1.16	1.37	....	....
150/120	.99	1.08	1.18	1.33	....	....
300/225	....	1.01	....	1.14	....	....
900/744	....	.91	....	....	....	....
1800/744	....	.91	....	....	....	....

* Turn includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.

** Spun Dyed Cupracolor Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn

Den/Fil	No Turns	Turns	5 Turns	5 Turns	12 Turns	12 Turns	15 Turns
40/30	\$1.35	\$1.35	....	....	....	....	....
50/36	1.05	1.05	....	....	....	....	....
65/45	1.13	....	....	....	\$1.50	....	....
75/45*	1.04	....	\$1.15	\$1.15	1.38	\$1.46	....
100/60*	.96	....	1.10	1.10	1.30	1.38	....
125/90	.91	....	1.06	1.06	....	....	....
150/90*	.83	....	.87	.87	1.21	1.21	1.30
150/120	.87	....	....	.99	....	....	....

* Available also in Spun Dyed Cupracolor Black at 15¢ per lb. extra.

"44" HH "Parfe" Spool Spun Yarn

Den/Fil	No Turns	Turns	5 Turns	5 Turns	12 Turns	15 Turns
50/36	\$1.60	\$1.85	\$1.85	....	....	....
75/45	1.48	1.68	1.68	1.78	1.88	....
100/60	1.38	1.48	1.48	1.68	1.78	....
150/90	1.21	1.28	1.28	1.63	1.73	....
300/120	1.21	1.28	....	....	....	....

Nub-Lite (Short Nubbi)

Code	Den/Fil	2 1/2 Turn Natural Cones	2 1/2 Turn Cones*	5 Turn Natural Cones	5 Turn Cones*
1515	160/90	....	....	\$1.50	\$1.40
1519**	155/90	....	....	1.50	1.40
2008	200/120	....	....	1.11	1.01
3002	315/180	\$1.15	\$1.05	....	....
4011	410/224	1.15	1.05	....	....
6001	600/360	1.13	1.03	....	....
8001	860/450	1.13	1.03	....	....

* Basic price for cones when dyed. Dyed Colors 30 and 35 cents above basic price. Prices based on 200 lb. dyed lots only. Prices for natural yarn skeins same as natural cone prices.

** Code 1519 can be run in warp or filling.

CUPIONI Type B

Code	Den/Fil	2 1/2 Turn Cones
9630	70/45	\$1.69
9660	100/60	1.53
1545	150/90	1.30
9730	285/135	1.15
9792	450/225	1.15
9814	600/372	1.12
9837	940/372	1.02

* Spun Dyed Cupracolor is spun 150, 285, and 940 deniers at 35¢ per pound extra. Cupracolor Black Comes in all deniers.

STRATA SLUB

Code	Den/Fil	Turned Cones	Price
9747	275/225	3 1/2	\$1.25
9798	450/372	2 1/2	1.15

9823	600/372	2 1/2	1.10
9847	960/372	2 1/2	1.25
9885	1290/372	1 1/2	1.00
9924	2680/744	1 1/2	1.00

* Spun Dyed Cupracolor is spun in 600 and 960 deniers at 35¢ per pound extra.

FLAIKONA

Code	Den/Fil	Turned Cones	Price
9699	150/148	2 1/2	\$1.35
9769	300/224	2 1/2	1.25
9782	450/270	2 1/2	1.05
9805	600/360	2 1/2	1.05
9840	900/450	2 1/2	1.00
9924	2000/744	2 1/2	.95

* Spun Dyed Cupracolor Black 35¢ per pound extra.

Terms: Net 30 days, F. O. B. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight allowed to Memphis, Tennessee. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F. O. B. delivery point.

Prices are subject to change without notice.

American Enka Corp.

Current Prices

Effective February 29, 1960

Standard Quality Yarns

NATURAL

Den./Fil.	Luster	Turns	Weaving		Skeins		Cakes	Knitting Cones
			Cones	Beams	Long	Short		
50/18	E	5 S	....	....	....	....	1.63	....
50/20	B	4 S&Z	....	....	....	....	1.52	1.64
75/10	B	3 S&Z	....	....	....	....	1.02	....
75/18	E	4 S	....	....	....	....	....	1.14
75/30	B	2.5, 4S&Z	1.14	1.14	1.32	1.41	1.02	1.14
75/30	B	3 S	1.24	1.24	1.49	1.59	1.12	1.24
75/45	P,E	2.5, 4S&Z	1.14	1.14	1.32	1.41	1.02	1.14
75/60	B,P	3, 4 Z	1.16	....	....	....	1.04	....
100/14	B	3 S&Z	....	....	1.15	1.23	.90	....
100/40	B,E	12 S&Z	....	....	....	....	1.29	....
100/40	B,P,E	4, 5 S&Z	.98	....	....	....	.90	.98
100/40	B	6 S	1.11	....	1.34	1.44	1.09	....
100/40	B,P	2.5, 4S&Z	.98	.98	1.15	1.23	.90	....
100/60	B	4 S&Z	....	....	....	....	.90	....
100/60	E	2.5 S	1.00	1.00	....	....	.92	....
125/40	E	3 Z	....	....	....	....	.87	.90
125/50	B,P	3 S	.96	.96	....	....	....	....
150/40	B,E	0	.745	....	....	....	....	....
150/40	B,P,E	2.1, 3S&Z	.82	.82	.96	1.03	.78	.82
150/40	B,E	5 S&Z	.90	.90	1.15	1.25	.86	....
150/40	B,E	8 S&Z	.95	.95	1.20	1.30	.91	....
150/90	E	2.1 S&Z	.83	.83	....	....	.79	....
200/40	B	3 S	.81	.81	.94	1.01	.77	....
200/40	P	3 Z	....	....	.94	1.01	.77	.81
250/60	P,E	2, 4 Z	....	....	.93	1.00	.77	.80
300/30	E	3 S	.81	.85	....	....	....	....
300/40	B	3, 2 Z	.73	.76	....	....	....	....
300/50	B,E	3 S	.73	.76	....	....	....	....
300/60, 120	B,P,E	2.1 S&Z	.73	.73	.82	.89	.71	.73
300/60	B	3.5 S	.73	.73	.82	.89	.71	....
300/60	B	6 S	.86	.86	....	1.00	.84	....
300/120H.T.	B	2.5 S	.75	.75	....	....	.73	....
300/40H.T.	B	3, 4 Z	.85	....	....	....	.83	....
450/60	B	3 S	.89	.71	....	....	.67	....
450/80	B,E	3 S	.69	.71	.78	.85	.67	....
600/60	B,E	3 S	.73	.75	....	....	....	....
600/120	B,E	3 S	.69	.71	.78	.85	.67	....
900/120	B	3, 4 S	.69	.71	.78	.85	.67	....
900/120H.T.	B	3, 4 S	.71	.71	....	....	.69	....

B = Briglio

P = Perigo (Semi-Dull)

H.T. = High Tenacity

Jetspun® (Colored Yarns)

Den./Fil.	Tenacity	Turns	Weaving Cones	Beams	Colors
100/40	Regular	2.55	\$1.35	\$1.35	All
150/40	Regular	2.15	1.17	1.17	All
200/40	Regular	8.05	1.28	1.28	All
300/120	Regular	2.15	1.09	1.09	All
450/80	Regular	3.05	1.05	1.05	All
600/80	Regular	3.45	1.04	1.04	All
300/40	High	3.45	1.11	1.11	All
900/120	High	3.45	1.06	1.06	All

® Registered Trade Mark for American Enka Solution-dyed Rayon Yarn.

Skyloft (Lofted Rayon Filament Yarns)

Natural and Jetspun®

Denier	Denier per Filament	Twist	Natural	Black	Other Colors
1000	7.5	3.4S	.82	\$1.05	\$1.05
2200	15	3.5S&Z	.67	.77	.84
2700	15	3.5S&Z	.67	.77	.84
5300	15	3.6S&Z	.65	.75	.82

American Viscose Corp.

Effective October 13, 1959

Graded Yarns

Denier	Denier per Filament	Type	Short Skeins	Long Skeins	Cones	Beams	Cakes
75	10-30	Bright	\$1.41	\$1.32	\$1.14	\$1.14	\$1.02
75	30	Dull	....	....	1.14	1.14	1.02
100	14-40	Bright	1.23	1.15	.98	.98	.90



Donat O. Green

Bruce F. Roberts

Bruce F. Roberts has been appointed assistant director of merchandising of the Fibers Division of Eastman Chemical Products, Inc. **Donat O. Green** was named manager of the division's apparel merchandising.

Harold L. Sager has been appointed assistant manager of Du Pont Dyes and Chemicals Division's New England district sales office.

James Pilkington has joined Eastern Color & Chemical Co. as director of application and technical services.

E. L. Herbert has been named sales engineer for the Middle Atlantic and New England states for Edward J. McBride Co.

Leo Adams has been appointed manager of Terafilm Corp.'s new polyester sheeting plant.

Francis J. Dougherty has been appointed coordinator of engineering by Turbo Machine Co.

Frank R. Rochow has been named plant manager of Schlegel Manufacturing Co.'s new Chester, S.C., industrial textile facility.

Sheldon Joblin has been appointed president of Burlington Shirting Co.

Frank D. Dobbs has resigned as president of the Artloom Carpet Co. division of Trans-United Industries, Inc. He also has relinquished his posts as an officer and director of Trans-United.

Judd J. Mohl has been elected vice president of James Talcott, Inc.

Harry W. Barrow has been named advertising manager of The Dow Chemical Co.'s Textile Fibers Department.

Charles C. Gadsden has been appointed director of personnel services for Indian Head Mills, Inc.

F. Fuller Ripley has been elected executive vice president of Troy Blanket Mills. **Edward J. Russell**, after 40 years service with the company, has resigned as vice president-manufacturing.

Frank E. Ohl has been appointed

industrial relations manager of Industrial Rayon Corp.

A. A. J. Kramers has been named manager of the Textile Research Department of American Enka Corp. He succeeds **Donald J. Godehn**, who was appointed director of the Marketing Technical Department. **John F. Tutt** was appointed development specialist for industrial applications in the marketing technical unit.

Ennis P. Whitley, vice president for distribution of The Dobeckmun Co. division of The Dow Chemical Co. has retired after 16 years with the company.

Dr. Robert Reiner, 80, founder and president of Robert Reiner, Inc., died on August 22, 1960. He often was called the "Father of the American Embroidery Industry," as he had been instrumental in importing around 1,600 of the Vomag Co.'s Schiffl embroidery machines, manufactured in Chemnitz (Saxony), Germany. He was awarded an honorary degree in economics in 1922 by the University of Heidelberg.

Richard H. Rabbitt, 56, executive vice president of Jordan Mills, Inc., died recently. He had been associated with Jordan Mills since 1932.



SEASONAL PEAKS

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100 60	Dull	1.00	1.00	.92
150 24-40	Bright	1.03	.96	.82
150 40	Semi-Dull	1.03	.96	.82
150 40	Dull82	.78
150 90	Dull	.....	.83	.79
200 10-44	Bright	1.01	.94	.81
250 60	Semi-Dull & Dull	1.00	.93	.80
300 15	Bright	.....	.85	.78
300 30	Dull Flat Filament	.....	.....	.85
300 44	Bright & Dull	.89	.82	.73
300 234	Dull	.....	.78	.69
450 60-100	Bright	.....	.78	.69
600 100	Bright & Dull	.....	.78	.69
900 50-100-150	Bright	.....	.78	.69
1200 75	Bright	.....	.78	.69
2700 150	Bright	.....	.78	.69

Extra Turns Per Inch

150 40	Bright 6-Turns	\$1.25	\$1.15	\$.90	\$.90	\$.88
200 44	Bright 6-Turns	.....	1.05	.96	.96	.....
300 15	Bright 5-Turns	.....	.....	.86	.86	.....
300 44	Bright 4.3-Turns	.....	.....	.81	.....	.79
300 44	Bright 6-Turns	.97	.90	.86	.86	.84
300 120	Rayflex 6-Turns	.....	.....	.93	.93	.....
600 30	Bright 5-Turns	.....	.86	.82	.82	.80

Rayflex Yarns

150 40-60	Rayflex	\$	\$	\$.85	\$.85	\$.81
200 75	Rayflex	.....	.....	.84	.84	.80
300 60-120	Rayflex	.....	.....	.75	.75	.73
450 120	Rayflex	.....	.....	.71	.71	.69
600 234	Rayflex	.....	.....	.71	.71	.69
900 350	Rayflex	.....	.80	.71	.71	.69

Thick & Thin Yarns

150 40-90	Bright & Dull	\$	\$	\$1.18	\$	\$
300 75	Bright & Dull	.....	.....	1.08	.....	.....
300 120	Bright & Dull	.....	.....	.98	.....	.....
450 100	Bright & Dull	.....	.....	.92	.....	.....
490 120	Bright & Dull	.....	.....	.98	.....	.....
900 350	Dull	.....	.....	1.03	.....	.....
920 120	Bright & Dull	.....	.....	1.03	.....	.....

Colospun Yarns

Denier	Type	Cones/Tubes Beams/Spools
75	Regular Strength	\$1.71
100	Regular Strength	1.35
150	Regular Strength	1.17
200	Regular Strength	1.14
300	Regular Strength	1.09
450	Regular Strength	1.05
600	Regular Strength	1.05
900	Regular Strength	1.05
300	High Strength	1.11
450	High Strength	1.06
900	High Strength	1.06
300	Regular Strength 5-Turns	1.19

Avicron Yarns

Denier	Filament	Singles & 2 Ply Singles & 2 Ply Singles 5 TPI	Cones/Tubes Beams/Spools
1800	100-200		\$.61
2700	150-300-980		.58
2700	980		.61

Viscose Filament Yarns

The following material deposit charges are required:	
Metal Section Beams	\$170.00 each
Metal Section Beam Racks	75.00 each
Metal Tricot Spools—14" flange	30.00 each
21" flange	60.00 each
32" flange	150.00 each
Metal Tricot Spool Racks—14" flange	135.00 each
21" flange	100.00 each
32" flange	75.00 each
Wooden Tricot Spool Crates	20.00 each
Cloth Cake Covers	.05 each
Same to be credited upon return in good condition—freight collect.	

Celanese Fibers Company

Effective October 12, 1960

Viscose Rayon Filament Yarn Prices—Bright and Dull

Denier/Fil/Twist	Beams	Cones	Cakes
75/30/2Z	1.11		
75/30/3	1.11	1.10	.98
100/40/2Z	.97		
100/40/3	.97	.98	.88
100/60/3	NS	1.02	.95
100/60/2Z	.97	.96	
100/60/3	NS	.98	.90
125/40/2Z	.95		
125/40/3	.95	.94	.87
150/40/0	NS	.74 1/2	
150/40/2Z	.81		
150/40/3	.81	.79 1/2	.76
150/40/8	NS	.90	.86
150/40/10	NS	.85	.91
150/40/10	NS	.98	.94
150/90/0	NS	.77 1/2	
250/60/0	NS	.74	
250/60/3	NS	.80	.77
300/50/0	NS	.70	
300/50/2Z	.72		
300/50/3	.72	.70 1/2	.69
450/60/0	NS	.68	
450/60/3	NS	.69	

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U. S. A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

Effective October 11, 1960

Bright and Dull

Den.	Fil.	Turns/ Inch Up to	Textile "Cordura"	Beams	Cones (A)	Cakes
40	20	3	Textile "Cordura"		\$1.97	\$1.92
50	20	3	Textile "Cordura"		1.72	1.67
50	35	3	Textile "Cordura"		1.77	
75	10	3	Bright	\$1.14	1.14	1.02
75	30	3	Bright	.98	.98	.90
100	40	3	Dull		1.00	.92
125	50	3		.96	.96	.87
150	40	3	Bright	.82	.82	.78
150	60	3	Textile "Cordura"	.82	.82	.78
150	80	3	Dull		.875	.845
150	100	3	Dull		.83	.83
300	50	2.5		.73	.73	.71
300	120	3	Textile "Cordura"	.74	.74	.72
450	72	3		.71	.69	.67
600	98	3	Bright	.71	.69	.67
600	240	3	Textile "Cordura"	.72	.70	
900	50	3	Bright	.71	.69	.67
900	144	3	Bright	.71	.69	.67
2700	150	3	Bright	.71	.69	

Thick and Thin

100	40	3	#7 Bright	1.42
150	90	3	#7 Bright	1.08
200	80	3	#7 Bright	1.08
450	100	3	#7 Bright	.92
1100	240	3	#60 Bright	1.03
2200	480	3	#60 Bright	.98

Monofil

300	1	3	Bright	1.15	1.10
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Plush

300	30	3	Dull	.85	.81
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(A) 2¢/lb. additional for cones less than 3¢.

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "CORDURA" and "SUPER CORDURA" are Du Pont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective June 29, 1959

Continuous Process Textile Yarns

Denier	Fila- ment	Turns per In.	Type	Beams	2.8# Cones	4.4# Cones and Tubes
150	40	2.5"S"	Bright	.82	.82	
200	20	2.5"S"	Bright	.81	.81	
300	44	2.5"S"	Bright	.73	.73	
450	60	2.0"S"	Bright	.69		.69
600	90	1.5"S"	Bright	.69		.69
900	50	2.0"S"	Bright	.69		.69
900	150	2.0"S"	Bright	.69		.69
1100	480	2.0"Z"	Bright extra strong	.66		.66

Lustre #4 is semi-dull.

Prices are subject to change without notice.

Strawn Monofilament

Denier	Fila- ment	Turns per In.	Type	4.4# Cones	Spools and Tubes
450	1	0	Bright and Dull	1.00	1.05
450	1	2	Bright and Dull	1.00	1.05
1250	1	0	Bright and Dull	1.00	1.05
1250	1	2	Bright and Dull	1.00	1.05

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points in continental United States except Alaska.

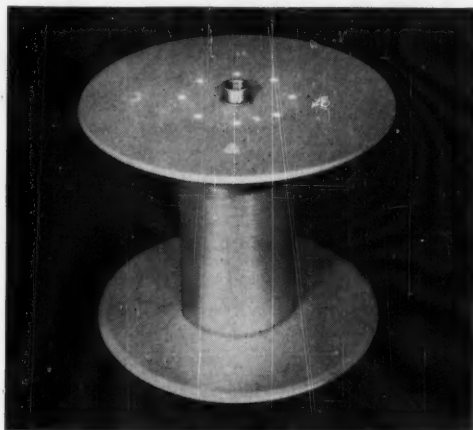
Prices are subject to change without notice.

North American Rayon Corp.

Current Prices

Denier/Filament	Twist	Knitting* Cones	No Twist Knitting Cones	Weaving Cones, Velvet Cones, Beams, Untreated Tubes**	Cakes
Normal Strength Yarns — NARCO					
75/30	3.5			1.14	1.02
75/30	7			1.27	
75/30	12			1.35	
75/30	15			1.37	
75/30	20			1.40	
100/40/60	3.5			.98	.90
100/40	12			1.22	
125/25/60	3			.96	.87

NO YARN TRAPPING WITH BRAZED ALUMINUM TWO POUND TAKE-UP BOBBIN



New aluminum take-up bobbin with barrel and heads brazed together into a single unit prevents yarn trapping. Exceptional strength at price no higher than ordinary bobbins.

Write us today for full details.



ALLENTOWN BOBBIN WORKS, INC.

ALLENTOWN

PENNSYLVANIA

There is no room so big
as the 'room for improvement'.



We who make

LAMBERTVILLE THREAD GUIDES

have a 'room for improvement'. It's our research laboratory, a room dedicated to constant search for ever better guide materials and manufacturing techniques. It's this room and the people who work there that are responsible for the extra hardness, smoothness and durability of Lambertville guides. Available in white or 'Durablu' finish. Write for catalogue and samples.

Lambertville Ceramic
AND MANUFACTURING COMPANY
LAMBERTVILLE, NEW JERSEY

LAMBERTVILLE: YOUR GUIDE TO BETTER OPERATIONS!

PLAN GROWTH THROUGH FACTORING

IT'S A

"BLUE CHIP"

INVESTMENT FOR THE FUTURE



ISELIN-JEFFERSON FINANCIAL COMPANY, INC.

ISELIN-JEFFERSON FINANCIAL
OFFERS YOU THIS "FACTORING PORTFOLIO"

- ADEQUATE WORKING CAPITAL to meet current requirements and growth potential.
- STOP LOSS ON COLLECTIONS with all credit risks assumed by us.
- EXTRA DIVIDEND... more time for your planning and sales — "Time Is Money".

111 WEST 40th ST., NEW YORK 18, N.Y.

150/42	0		.74%		
150/42/60	3			.82	.78
300/75	0	.80%			
300/75	3		.71	.73	.71
900/46	2.5	.69		.69	
1600/92	2.5	.69		.69	

* Oiled Cones \$.01 per pound extra for Graded Yarns only.

* 1 lb. Tubes \$.02 per pound extra for Graded Yarns only.

Terms: Net 30 days, F.O.B. shipping point, minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight to Memphis, Tennessee allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point.

Prices subject to change without notice.

TRIACETATE

Celanese Fibers Company

Current Prices Arnel Yarn Prices

Bright & Dull

Effective August 19, 1958

Denier and Filaments	Cones \$	Beams \$1.16	Thick and Thin Cones \$
55/WKZ/15	1.32	1.33	
75/WKZ/20		1.16	
75/2Z/20	1.21	1.22	
100/2Z/26	1.14	1.15	
150/2Z/40	.95	.96	
200/2Z/40			
200/2Z/52	.92	.93	1.25
300/2Z/80	.87	.88	1.23
450/2Z/120	.86	.87	
600/2Z/160	.85	.86	1.21

3 to 5 Turns on Cones or Beams—\$.02 Additional

Premium for Black Arnel—\$.25 Per Pound

Premium for Navy Arnel—\$.37 Per Pound

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

CELLULOSIC HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective October 17, 1960

Industrial Yarn Prices

Prices Subject To Change Without Notice

TYREX (ENKA II)	Denier/Filament	Standard Beams	Cones
	1100/720	.55	57.5
	1650/1100	.49	51.5
	2200/1440	.48	50.5
	3300/2160	.48	50.5
TYREX FABRIC (ENKA II)	1100/740	.67	
	1650/1100	.58	
	2200/1440	.57	
SUPRENKA M	1230/720	.55	57.5
	1600/1100	.51	53.5
	1800/1100	.49	51.5
	1870/1100	.49	51.5
	2200/1440	.48	50.5
	2400/1440	.48	50.5
	3300/1440	.48	50.5
	3300/2160	.48	50.5
	3650/2180	.48	50.5
SUPRENKA MS	1100/720	.55	57.5
	1650/1100	.49	51.5
	2200/1440	.48	50.5
	3300/2160	.48	50.5
TEMPRA—MECHANICAL AND CHAFER	1100/480	.54	56.5
	1230/480	.54	56.5
	1650/720	.48	50.5
	1820/720	.48	50.5
	2200/960	.47	49.5
	2400/960	.47	49.5
	3300/2160	.47	49.5
	1130/480 (5.0Z)	.58	.58
TEMPRA—SEWING YARN	1230/480	.60	.60
	1750/720	.50	.50
	1820/720	.49	.49
HIGH TENACITY	300/40, 300/120	.75	.75
	900/120	.71	.71
REGULAR TENACITY	100/40	.98	.98

* Effective December 1, 1960.

American Viscose Corp.

Effective Dec. 23, 1959

Tyrex*

Tyrex* Viscose Tire Yarn

Denier	Filament	Twist	Beams	Cones
1100	980	0	.55	.575
1100	980	Z	.55	
1650	1500	0	.49	.515
1650	1500	Z	.49	
2200	1500	0	.48	.505

Tire Fabric Made with Tyrex* Viscose Tire Yarn and Cord

Denier	Filament	Carcass	Top Ply	Breaker
1100	980/2	.67	.67	.67
		Factor Open-525	300-490	115-275
1650	1500/2	.58	.59	.615

* Factor determined by dividing total ends by picks.

* Tyrex is a collective trade-make of Tyrex Inc. for Viscose Tire Yarn and Cord.

Rayon Tire Yarn

Yarn

High Strength

Denier	Filament	Twist	Unslashed Beams	Unslashed Cones	Slashed Beams	Slashed Cones
1100	490	0			.54	.565
1150	490	Z	.54	.565		
1650	980	0	.48	.505		
1650	980	Z			.48	.505
1875	980	0	.48	.505		
2200	980	0			.47	.495

Super "Rayflex"

Type	Denier	Filament	Twist	Unslashed Beams	Unslashed Cones	Slashed Beams	Slashed Cones
Type 210	1650	980	Z			.48	
	1875	980	Z	.48	.505		
Type 120	1800	1500	0		.515		
	3300	3000	0			.48	.505
	4400	3000	0			.48	.505

Chafer Yarn

1100/490 High Strength 5Z Twist .58 .58

Adhesive Dipped Yarn or Cord

.06 Premium

"Avisco" Bag Sewing Twine

Sold by The American Thread Company

Prices Effective June 21, 1960

1100/980 Super "Rayflex" 120	0-2Z	Cones	.62
1500/980 Super "Rayflex" 120	0-2Z	Cones	.57
1780/1500 Super "Rayflex" 120	0-2Z	Cones	.55

Also available in Red at 0.7 Premium.

All Yarns Sold "Not Guaranteed for Dyeing".

Tire Fabric

Denier	Filament	Type	Factor*	Carcass Open-525	Top Ply 300-490	Breaker 115-275
1650	980/2	Super "Rayflex" 210	.37	.57	.58	.605

* Factor determined by dividing total ends by picks.

Cord on cones in regular Tire Yarn twists same as fabric prices.

Other twist combinations—prices quoted on request.

Special packages take premiums indicated.

4.0 oz Wardwell Tubes	.20
10.5 oz Wardwell Tubes	.10
1.5 lb. Regular Braider Tubes	.06
3.5 lb. Tubes	.045

Single Yarn—Based on cone price.

Piled Yarn—Based on fabric price.

The following deposit charges are made on invoices:

Beams	\$55.00 each
Crates (Metal)	75.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition—freight collect.

Rayon Tire Yarn and Fabric

Terms: Net 30 days. Seller to select and to pay transportation charges of common and contract carrier except when shipment moves West of the Mississippi River, in which event the actual cost of transportation to the Mississippi River crossing based on the lowest published freight rate, shall be allowed. Title to pass when merchandise is delivered to consignee. Transportation allowance based on lowest published volume rate shall be granted if merchandise is transported from shipping point in vehicle owned or leased and operated by buyer and title to pass when merchandise is delivered to same.

Price subject to change without notice.

Inferior Yarns (Designated HS-SR) .06 Below First Quality Price

Skein Yarn .04 Above First Quality Cone Price

"Avisco" Bag Twine

1-4# Cones	.05 Below First Quality List Price Only
4-10# Cones	.03 Below First Quality List Price Only
Adding 6 Turns to "0" Twist Yarn	.05

Celanese Fibers Company

Effective December 27, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	\$3.00 lb.	\$3.35 lb.
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Fortisan-36 Rayon Yarn

Bright

Denier and Filament	Twist	4# cones	8# cones	Tubes	Beams
270/280	0.8Z	\$2.30			
300/280	0.8Z	\$2.05			
300/280	3Z	\$2.20			
400/400	0.8Z	\$1.75			\$1.70
400/400	0			\$1.75	
800/800	0.8Z	\$1.25	\$1.25		\$1.20
800/800	3Z	\$1.40			
800/800	0			\$1.25	
1600/1600	0.8Z	\$1.15	\$1.15		\$1.10
1600/1600	2 1/2 Z	\$1.30			
1600/1600	0			\$1.15	

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A.

Prices subject to change without notice.

All previous prices withdrawn.

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Let's talk about...

LAUREL EMULSIONS

... first in conditioning and lubrication of both natural and synthetic yarns.

One of these—or another—Laurel Emulsion for natural and synthetic yarns will do a better job, with less work, at lower cost. There's one best emulsion in the Laurel Line to condition and lubricate any yarn . . . better.

LAUREL RUXITE A

... a quality lubricating and conditioning agent for cotton, wool, and synthetic spun yarns. Adaptable to rayon novelty yarns, it improves softness and running qualities. Forms highly stable emulsions with water.

...

LAUREL HYDROWAX HC

... especially prepared for tufting yarn producers. Restores rayon, cotton, or blended yarns to proper condition and imparts lubrication for better-running yarns. Easy to apply evenly, it's completely saponifiable for protection in scouring and dyeing.

...

LAUREL HYDROCOP and 3B SOFTNER

... first choice of knitting yarn manufacturers. Gives smooth running and even stitches, making for stronger yarn with fewer breaks. Causes no odor or color changes; easy to prepare; for natural or synthetic yarns.

...

LAURELWAX EMULSION WG

... truly cold water dispersible and excellent for winding trough work. For treating cotton, wool, Orlon and other knitting and sewing yarns, it is used at no sacrifice in active content where hot water is a problem.



Laurel

SOAP MANUFACTURING CO., INC.
TIOGA, THOMPSON & ALMOND STS. • PHILA. 34, PA.

Warehouses:

Paterson, N.J. Chattanooga, Tenn.
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Choose the
ring finish
that suits
YOUR
conditions

We not only provide you with the most modern ring designs, but also a variety of finishes:

MICRO FINISH

This finish is indicated where nylon travelers are used, either with our exclusive Backslope design, or with other styles.

DIAMOND FINISH

For spinning staple fibers on flange rings our 'DIAMOND' finish combines easy starting, smooth running and long life.

SUPER FINISH

Our 'SUPER' finish has been specifically developed for vertical ring twisting with steel travelers . . . lubricated by hand, by oil reservoir or by centralized pressure system.

Rely on **DIAMOND FINISH** 87-year experience for rings that suit your conditions, assuring easy starting, smooth running, long life.

WHITINSVILLE (MASS.)
SPINNING RING CO.
Makers of Spinning and Twister Rings since 1873

Rep. for the Carolinas & Va.: W. K. SHIRLEY, P.O. Box 406, Belmont, N. C.
Rep. for Ala., Ga. & Tenn.: H. L. WILLIAMS, Box 222, West Point, Ga.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices
Effective May 29, 1960

"Super Cordura"™

Den Fil	Turns/in	Beams
1100-720	2	.57
1200-720	2	.57
1530-860	2	.57
1600-960	2	.52
1650-1100	2	.50
1800-1100	2	.50
2200-1440	2	.49
2400-1440	2	.49

Terms: Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corporation

Effective July 29, 1960

Unbleached Bright High Tenacity Yarns

Single End Beams and Cones—Type 100

Denier	Filament	Turns per Inch	Beams	Cones
1100	480	2.0 "Z"	.56	.56
1150	480	2.0 "Z"	.56	.56
1650	720	2.0 "Z"	.49	.49
1725	720	2.0 "Z"	.49	.49
2200	1000	2.0 "Z"	.48	.48
3300	1440	2.0 "Z"	.48	.48
4400	2000	2.0 "Z"	.48	.48

Tyrex

Tyrex Certified Viscose Tire Yarn

Denier	Filament	Twist	Beams	Cones
1100	720	Z	.57	.545
1650	1100	Z	.50	.475

Terms: Net 30 days f.o.b. point of shipment, title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points in continental United States except Alaska.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

North American Rayon Corporation

Current Prices

Super Super High Strength

Continuous Yarn Type 710

1100/720	1.6Z	Cones	Beams
1650/720/1100	2.0Z	.49	.58

Tire Cord Fabrics

Super Super High Strength Type 710

1100/720	Rolls
1650/720	.67
	.58

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold f.o.b. delivery point.

Prices are subject to change without notice.

CELLULOSIC STAPLE & TOW ACETATE

Celanese Fibers Company

Effective March 2, 1959

Staple

(Most Deniers Available in Bright or Dull Luster)

Celanese Acetate Staple	
3, 5.5 & 8 Denier	
(Regular Crimp, Type HC, Type D)	.36
(Regular Crimp, Type HC, Type D)	.37
35 Denier	.38
50 Denier	.40
Type F—5.5 & 8 Denier	.35
Type F—12 & 17 Denier	.36
Type K—(Available under Celanese License Agreement)	.39
¾" to 1½" length (All Deniers)	.03 (Premium)
35 Denier Flat Filament Acetate	.40
Non-Textile Acetate Fibers	.29*

Tow (Celatow)

3, 5.5 & 8 Denier	.37
2, 12 & 17 Denier	.38
35 Denier	.40
35 Denier Flat Filament Acetate Tow	.42
50 Denier	.43

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

* No transportation allowed (F.O.B. shipping point.)

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

RAYON

American Viscose Corp. Current Prices

Rayon Staple

	Bright and Dull
Regular	\$.28
"Viscose 22"	.28
1.25 Denier	.31
All Other Deniers	.28
Hi-Crimp	.28
Bleached Crimp	
1.5, 3.0 Denier	.315
Smooth	
8.0 15.0 22.0 Denier	.32
Bleached	.33
Extra Strength	
0.75 Denier	.40
1.0 Denier	.35
XL	
1.0 Denier	.40
1.5, 3.0 Denier	.37
XLI	.34
Fiber 40	
1.0 Denier	.43
1.5 Denier	.40

Colorspun Black Staple

1.5, 3.0, 5.5 Denier	.37
15.0 Denier crimped	.40

Prices of other colors on request.

Tow

1.5, 3.0, 5.5 Denier	.35
9.0 Denier	.37
15.0, 20.0 Denier	.38
Color spun black tow	.42

Terms: Net 30 days.

American Enka Corp.

Current Prices Effective April 1, 1960

Rayon Staple

Regular Crimp

	Brt.	Dull
1.5 and 3 denier	\$.28	\$.28
High Crimp		
4.5 denier	.28	
6.5 denier	.28	.28
8 denier	.28	
15 denier	.28	.28

Celanese Fibers Company

Effective May 1, 1959

Rayon Tow

	Bright & Dull
1.5, 3, 5.5 D.P.F.	.35
Total denier 200,000	
8 D.P.F.	.37
Total denier 207,000	

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Courtaulds (Alabama) Inc.

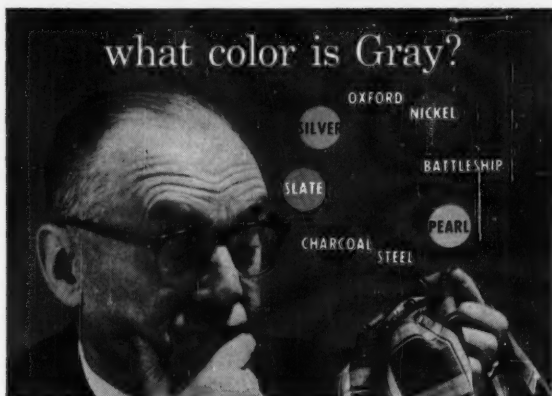
Effective April 14, 1959

Rayon Staple

	Bright	Dull
1½ and 3 denier	\$.28	\$.28
Available in 1½", 1-9/16" and 2".		
Crimped Rayon Staple		
3 and 5½ denier	.34	.34
Available in 1-9/16" and 3".		
3 denier		.34
Available in 2".		

Coloray® Solution Dyed Rayon Staple

Color	Price per lb.
Black	39¢
Silver Grey	41¢
Mocha	41¢
Tan	41¢
Medium Brown	41¢
Aqua	42¢
Rose	42¢
Dawn Pink	42¢
Ecru	42¢
Dark Brown	42¢
Gold	45¢
Slate Grey	45¢
Sulphur	46¢
Nugget	46¢
Light Blue	47¢
Crystal Blue	47¢
Apple Green	47¢
Sage	47¢
Peacock Blue	48¢
Medium Blue	50¢
Indian Yellow	51¢
Dark Blue	51¢
Hunter Green	51¢
Turquoise	52¢
Malachite Green	53¢
Red	58¢



At ATLANTIC color specified is color delivered . . .
assured by superior techniques and
facilities acknowledged in the industry.

YARN DYEING

Rayon • Nylon • Acetate • Stretch Yarns
Cakes • Packages • Skeins

Custom-matched colors. Large dye batches.
Any degree of color fastness. Packaged as desired.

PROMPT DELIVERY

Atlantic
Rayon Corporation

125 WEST 41st ST., NEW YORK 36, LONGACRE 3-4200
PLANT: 86 CRARY ST., PROVIDENCE, R. I.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS
AMENDED BY THE ACTS OF MARCH 3, 1933, JULY 2, 1946
AND JUNE 11, 1960 (74 STAT. 208) SHOWING THE OWNER-
SHIP, MANAGEMENT, AND CIRCULATION OF MODERN TEX-
TILES MAGAZINE, published Monthly at Manchester, New Hamp-
shire for October 1, 1960.

1. The names and addresses of the publisher, editor, managing
editor, and business managers are:
Publisher, Alfred H. McCollough, 303 Fifth Ave., New York 16, N. Y.
Editor, Jerome Campbell, 303 Fifth Ave., New York 16, N. Y.
Managing editor, H. George Janner, 303 Fifth Ave., New York 16, N. Y.
Business manager, H. J. Williams, 303 Fifth Ave., New York 16, N. Y.

2. The owner is: (If owned by a corporation, its name and address
must be stated and also immediately thereunder the names and ad-
dresses of stockholders owning or holding 1 percent or more of total
amount of stock. If not owned by a corporation, the names and ad-
dresses of the individual owners must be given. If owned by a
partnership or other unincorporated firm, its name and address, as
well as that of each individual member, must be given.)
Rayon Publishing Corp., 303 Fifth Avenue, New York 16, N. Y.
A. H. McCollough, 303 Fifth Avenue, New York 16, N. Y.
Harries A. Mumma, 61 Broadway, New York 6, N. Y.

3. The known bondholders, mortgagees, and other security holders
owning or holding 1 percent or more of total amount of bonds, mort-
gages, or other securities are: (If there are none, so state).

NONE.

4. Paragraphs 2 and 3 include, in cases where the stockholder or
security holder appears upon the books of the company as trustee or
in any other fiduciary relation, the name of the person or corpora-
tion for whom such trustee is acting; also the statements in the
two paragraphs show the affiant's full knowledge and belief as to the
circumstances and conditions under which stockholders and security
holders who do not appear upon the books of the company as trust-
ees, hold stock and securities in a capacity other than that of a
bona fide owner.

5. The average number of copies of each issue of this publication
sold or distributed, through the mails or otherwise, to paid sub-
scribers during the 12 months preceding the date shown above was:
(This information is required by the act of June 11, 1960 to be in-
cluded in all statements regardless of frequency of issue.) 8197

A. H. MCCOLLOUGH, Publisher

Sworn to and subscribed before me this 19th day of September, 1960.

DORIS F. RATTEBURY
Notary Public, State of New York

No. 24-3211700

Qualified in Kings County
Certificate filed in New York County
Commission Expires March 30, 1961

NOVEMBER, 1960

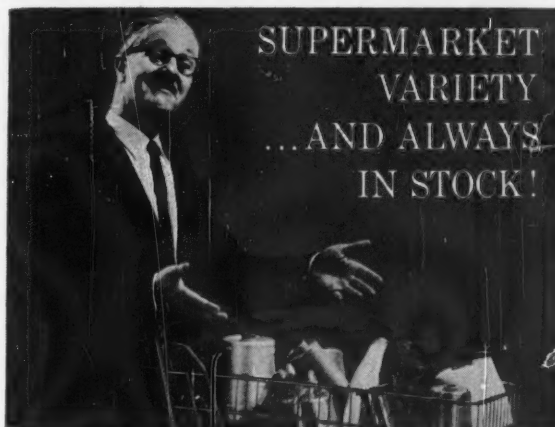
Young Personnel Changes

The F. A. Young Machine Co., Inc., has announced changes in personnel and the establishment of a sub-
sidiary business. Bobby Wright has been named sales
manager. Wright is being replaced in Georgia and
Tennessee by John W. Long. David F. Young, son
of F. A. Young, president of the firm, is now taking
sales training and will work in North and South
Carolina, formerly served by Tony Hayes who has left
the firm to join Sherrill Manufacturing Co. Bayne
Keever will continue to serve in central North and
South Carolina.

The general repair and parts business of the firm
has been separated and set up as a subsidiary of the
F. A. Young Machine Co. Morgan Ruppe is vice presi-
dent and manager of the subsidiary, with James A.
Rayfield acting as plant manager. David Pearson will
be in charge of presser manufacturing operations of
the Norlander Machine Co., whose machinery and
equipment has been purchased by Young and moved
to Gastonia, N. C.

Japanese Rayon Staple

Japanese exports of rayon staple to the United
States in the 1960 first half totaled 574,000 pounds,
compared with about 30,000 pounds in all of 1959,
according to statistics supplied by the Japanese Fi-
nance Ministry. Shipments of rayon yarn in the 1960
first half to this country came to 726,000 pounds as
against 500,000 pounds in all of last year. Other ex-
ports to the U.S. in the 1960 first half included 147,000
pounds of vinylon (polyvinyl alcohol) fiber, about
10,000 pounds of other synthetic fibers and yarns plus
some 10,000 pounds of spun yarns of all manmade
fibers. In the 1959 first half these Japanese exports
to the U.S. totaled 43,000 pounds, 24,000 pounds and
less than 5,000 pounds, respectively.



Delivered immediately!

RAYON • NYLON • ACETATE YARNS
graded and inferior—*all put ups.*

MALORA METALLIC YARNS
supported and unsupported

THROWN YARNS

HELANCA STRETCH YARNS
NYLON • DACRON



125 WEST 41st STREET, NEW YORK 36, LONGACRE 3-4200

*T.M.

In addition to the above, Black is also available in:
 1 1/2 den. 1 1/4" 5 1/2 den. 3"
 3 den. 1 1/4" 5 1/2 den. 6"
 3 den. 1-9/16"

Terms: Net 30 days f.o.b. LeMoyne, Alabama; Minimum transportation allowed to points in U.S.A. east of Mississippi River.

Corval® Cross Linked Rayon

Effective April 14, 1959

Man-made, cross-linked, cellulosic staple, Bright and Dull, 1 1/4, 3 and 5 1/2 denier..... \$.40 per lb.

Topel® Cross-Linked Rayon

Man-made, cross-linked, cellulosic staple, Bright and Dull, 1 1/4, 3 and 5 1/2 denier..... \$.37 per lb.

Terms: Net 30 days f.o.b. LeMoyne, Alabama; Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Fibres Co.

Div. Bigelow-Sanford, Inc.

Rayon Staple

Effective October 20, 1960

Regular 1.5 & 3.0 denier Bright & Dull, 1-9/16", 2" .28
 White (Crimped) 8 denier 3" Bright28
 15 denier 3" Bright28
 15 denier 3" Dull28

"KOLORBON"—Solution Dyed Rayon Staple—3" and 6"

	8 Denier	15 Denier	15 Denier
	Bright	Dull	Bright
Cloud Grey	.39	.39	
Sandalwood	.39	.39	
Nutria	.39	.39	
Sea Green	.39	.39	
Mint Green	.39	.39	
Champagne	.39	.39	
Midnight Black	.39	.39	.30
Gold	.39	.39	
Turquoise	.39	.39	
Melon	.39	.39	
Capri Blue	.39	.39	
Charcoal Grey	.39	.39	
Coco	.39	.39	
Sable	.39	.39	.39
Tangerine	.59	.59	.59
Chinese Red	.59	.59	
Larkspur Blue	.59	.39	.59
Royal Blue	.59	.39	
Lemon Peel	.48	.48	
Kelly Green	.45	.45	
Bitter Green	.59	.59	.59
Brazil	.39	.39	
Redwood	.39	.39	
Frost Green	.39	.39	
Mist Grey	.39	.39	
Medium Brown	.39	.39	
Dark Brown	.39	.39	.39
Woodtone	.39	.39	
Antique Gold	.39	.39	
Light Turquoise	.39	.39	
Hunter Green	.39	.39	

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

"Zantrel" Polynosic Rayon

Effective August 14, 1959

Man-made, cellulosic staple.
 Semi-Bright, 1 denier, 1 9/16" \$.50 per lb.
 1 1/2 denier, 1 1/4" and 1 9/16"47 per lb.
 3 denier, 1 9/16" and 2"47 per lb.

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

North American Rayon Corporation

Current Prices

Rayon Staple

Super High Tenacity	Bright
No. 1 (Unshrunk)	
1, 1.5 & 2.3 deniers	.40
No. 2 (Preshrunk)	
1, 1.5 & 3 deniers	.40

Rayon Tow

High Tenacity	
2200/960	.52
2200/2000	.525
4400/2000	.475
4400/2934	.475
6000/2934	.425

TRIACETATE

Celanese Fibers Company

Current Prices Effective June 7, 1957

(Most Deniers Available in Bright or Dull Luster)

Arnel Staple and Tow

Arnel Triacetate Staple	Bright & Dull
2.5 Individual Denier	\$.55
5.0 Individual Denier	.55
Arnel Triacetate Tow	
2.5 Individual Denier	\$.80
114,000 Total Denier	
5.0 Individual Denier	.80
90,000 Total Denier or	
180,000 Total Denier	
Packaged on Ball Wreps	
Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to	

any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

NON CELLULOSIC YARN NYLON

Allied Chemical Corporation

Caprolan®

Current Yarn Prices: Effective May 1, 1960

Denier	Filament	Turn/In.	Twist	Type**	Package	1st Grade Price/Lb.
140	16	1 1/2	Z	B	Cones*	\$1.80
140	16	1 1/2	Z	B	Beams	1.65
200	16	1 1/2	Z	B	Cones*	1.49
200	16	1 1/2	Z	B	Beams	1.54
200	32	3/4	Z	B	Bobbins	1.49
200	32	3/4	Z	B	Beams	1.54
210	32	1	Z	HB	Bobbins	1.49
260	16	1	Z	HB	Bobbins	1.49
420	64	1/2	Z	HBT	Bobbins	1.39
420	64	1/2	Z	HBT	Beams	1.44
520	32	1	Z	B	Bobbins	1.39
520	32	1	Z	B	Beams	1.44
840	136	1/2	Z	HBT	Al. Tubes	0.94
840	136	1/2	Z	HBT	Beams	0.92
1680	272	1/2	Z	HBT	Al. Tubes	0.94
1680	272	1/2	Z	HBT	Beams	0.92
1050	56	1/2	Z	B	Al. Tubes	1.15
2100	112	1/2	Z	B	Al. Tubes	1.11
4200	224	0	O	B	Paper Tubes*	1.10
2100	408	0	O	HB	Paper Tubes*	0.97
2500	408	0	O	HB	Paper Tubes*	0.97
3360	544	0	O	HB	Paper Tubes*	0.96
4200	580	0	O	HB	Paper Tubes*	0.96
5000	816	0	O	HB	Paper Tubes*	0.96
5800	952	0	O	HB	Paper Tubes*	0.96
7500	1224	0	O	HB	Paper Tubes*	0.95
10000	1632	0	O	HB	Paper Tubes*	0.95
15000	2448	0	O	HB	Paper Tubes*	0.95

Terms—Net 30 days.

Price subject to change without notice.

Bobbins are invoiced at 45¢ ea.

Aluminum Tubes are invoiced at 40¢ ea.

Beams are invoiced at \$220.00.

Cradles for beams are invoiced at \$53.00.

* Paper Tubes and Cones non-returnable, no charge.

** Type is used to describe luster and tenacity.

All prices quoted F.O.B. Shipping Point.

Minimum transportation charges allowed and prepaid in Continental United States, excluding Alaska.

American Enka Corporation

Enka Nylon Yarn Prices

Effective July 1, 1960

Den./Fil.	Luster*	Twist	Package	Price Per Pound Standard	Sub-Standard
15/1	SD or D	0.5 Z	Tricot Spools	4.00	
15/1	SD or D	0.5 Z	Pirns-2 lb.	3.89	3.69
20/1	SD	0.5 Z	Pirns-1 lb.	4.03	3.68
20/6	D	0.5 Z	Pirns-2 lb.	2.96	2.61
20/6	D	0.5 Z	Tricot Spools	3.07	
30/6	SD	0.5 Z	Pirns-2 lb.	2.36	2.21
40/8-13	SD	0.5 Z	Pirns-2 lb.	2.01	1.91
40/8-13	SD	0.5 Z	Tricot Spools	2.11	
40/8	SD-B de B	0.5 Z	Pirns-2 lb.	2.10	2.00
40/13	D	0.5 Z	Pirns-2 lb.	2.06	1.96
40/13	D	0.5 Z	Tricot Spools	2.16	
50/13	SD	0.5 Z	Pirns-2 lb.	1.91	1.76
50/13	SD-B de B	0.5 Z	Pirns-2 lb.	2.00	1.85
70/16-32	B-SD	0.5 Z	Pirns-2 lb.	1.71	1.66
70/32	SD-B de B	0.5 Z	Pirns-2 lb.	1.80	1.75
100/32	SD-B de B	0.5 Z	Pirns-2 lb.	1.74	1.69
100/32	SD	0.5 Z	Pirns-2 lb.	1.65	1.60
140/32-64	B-SD	0.5 Z	Pirns-2 lb.	1.60	1.55
140/32-64	SD-B de B	0.5 Z	Pirns-2 lb.	1.69	1.64
200/16-34	B	0.6 Z	Cones-4 lb.	1.49	1.44
200/16-34	B	0.6 Z	Beams	1.54	
200/32	SD-B de B	0.5 Z	Cones-4 lb.	1.58	1.53
280/16-34	B	0.6 Z	Cones-4 lb.	1.49	1.39
400/68	B	0.6 Z	Cones-4 lb.	1.39	1.29
520/32	B	0.6 Z	Cones-4 lb.	1.39	1.29

*Luster: B—Bright; SD—Semi-Dull; D—Dull; *SD-B de B. Pirns invoiced at 25¢ or 45¢ each, depending on type. Deposits refunded upon return of pirns in good condition. Cones are not returnable. Spools, Beams and Racks are deposit carriers and remain the property of American Enka Corporation.

Terms: Net 30 days from date of invoice. Minimum common carrier transportation charges will be prepaid and absorbed to first destination in the continental limits of the United States excluding Alaska and Hawaii. In prepaying transportation charges, seller reserves the right to select carrier used.

All prices subject to change without notice.

*B de B—Blanc de Blancs®—White of Whites Color.

The Chemstrand Corp.

Current Prices Effective August 11, 1960

Denier	Filament	Twist	Type	Package	Standard Price/Lb.	Second Price/Lb.
10	1	O	SD	Bobbins	\$7.16	\$6.56
15	1	O	SD	Bobbins	3.89	3.69
15	1	O	SD	Spools	4.00	
15	1	O	Dull	Bobbins	3.89	3.69
15	1	O	Dull	Spools	4.00	
20	7	Z	SD	Bobbins	2.91	2.61
20	7	Z	SD	Spools	3.02	
30	10	Z	SD	Bobbins	2.36	2.21
30	26	Z	SD	Bobbins	2.49	2.21
40	10	Z	SD	Bobbins	2.01	1.91

40	13	Z	SD	Bobbins	2.01	1.91
40	13	Z	SD	Spools	2.11	1.91
40	13	Z	SD	Warp Wind	2.01	1.91
40	13	O	SD	Draw Wind	2.01	1.91
40	13	Z	Dull	Bobbins	2.06	1.96
40	13	Z	Dull	Spools	2.16	1.96
40	13	O	Dull	Draw Wind	2.06	1.96
50	17	Z	SD	Bobbins	1.91	1.76
50	17	O	SD	Draw Wind	1.91	1.76
50	17	Z	Brt.	Warp Wind	1.91	1.76
70	20	Z	SD	Bobbins	1.71	1.66
70	34	Z	SD	Bobbins	1.71	1.66
70	34	O	SD	Draw Wind	1.71	1.66
70	34	Z	SD	Warp Wind	1.71	1.66
70	34	Z	Brt.	Bobbins	1.71	1.66
70	34	Z	Brt.	Draw Wind	1.71	1.66
70	34	Z	Brt.	Warp Wind	1.71	1.66
70	34	Z	HB	Bobbins	1.78	1.66
70	34	O	HB	Draw Wind	1.78	1.66
90	26	Z	SD	Bobbins	1.76	1.66
100	26	Z	SD	Bobbins	1.65	1.60
100	34	Z	SD	Bobbins	1.65	1.60
100	34	Z	HB	Bobbins	1.70	1.60
140	68	Z	SD	Bobbins	1.60	1.55
140	68	Z	Brt.	Bobbins	1.60	1.55
200	34	Z	Brt.	Bobbins	1.49	1.44
200	34	O	Brt.	Draw Wind	1.49	1.44
200	34	Z	Brt.	Spools	1.54	1.44
200	68	Z	SD	Bobbins	1.56	1.46
210	34	Z	HB	Bobbins	1.49	1.44
210	34	O	HB	Draw Wind	1.49	1.44
210	34	Z	HB	Warp Wind	1.49	1.44
210	34	Z	HB	Spools	1.54	1.44
210	34	Z	HB	Beams	1.54	1.44
210	34	Z	RHB	Bobbins	1.59	1.44
260	17	Z	HB	Bobbins	1.49	1.39
260	17	Z	HB	Beams	1.54	1.39
420	68	Z	HB	Bobbins	1.39	1.29
520	34	Z	HB	Bobbins	1.39	1.29
720	140	Z	RHB	Tubes	1.04	1.01
720	140	Z	RHB	Beams	1.04	1.01
780	51	Z	HB	Tubes	1.39	1.29
840	140	Z	HB	Tubes	.94	.92
840	140	Z	HB	Beams	.92	.92
840	140	Z	RHB	Tubes	.94	.92
840	140	Z	RHB	Beams	.92	.92
1040	68	Z	SD	Tubes	1.15	1.05
1680	280	Z	HB	Beams	.92	.90
1680	280	Z	RHB	Tubes	.94	.90
1680	280	Z	RHB	Beams	.92	.90
1680	280	Z	RHB	Cones	.95	.91

* Types: D—Dull; SD—Semi-dull; B—Bright; H—High tenacity.
Bobbins are invoiced at 25¢ or 45¢, depending on type; tubes are invoiced at 40¢ each; spools invoiced at \$95.00, \$110.00, and \$115.00, depending on type; and beams and crates for beams are invoiced at \$220.00 and \$25.00 respectively.

Prices subject to changes without notice.

Freight prepaid within Continental United States and Puerto Rico.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Denier & Filament		Turns/Inch & Twist		Type		Package		1st Grade	2nd Grade
7-1	0	0	200	Bobbins	\$8.05	\$7.40			
10-1	0	0	200	Bobbins	7.16	6.56			
12-1	0	0	200	Bobbins	6.35	5.85			
15-1	0	0	200	Beam	4.00	3.69			
15-1	0	0	680	Beam	3.89	3.69			
15-1	0	0	680	Bobbins	4.13	3.69			
20-1	0	0	200/280	Bobbins	4.03	3.68			
14-2	0.22	0.22	200	Bobbins	6.72	6.12			
17-2	0.22	0.22	200	Bobbins	5.96	5.41			
20-2	0.22	0.22	200	Bobbins	4.71	4.27			
15-3	0.22	0.22	200	Bobbins	5.19	4.69			
21-3	0.22	0.22	200	Bobbins	2.91	2.61			
20-7	0.52	0.52	200	Beam	3.02	2.61			
20-7	0.52	0.52	680	Bobbins	2.96	2.61			
20-7	0.52	0.52	680	Beam	3.07	2.61			
20-20	0.72	0.72	209	Bobbins	6.00	5.41			
28-4	0.22	0.22	200	Bobbins	2.81	2.61			
30-10	0.52	0.52	200	Bobbins	2.36	2.21			
30-10	0.52	0.52	300	Tricot Bms.	2.46	2.21			
30-10	0.52	0.52	200	Bobbins	2.51	2.26			
30-10	0.52	0.52	680	Bobbins	2.41	2.21			
30-10	0.52	0.52	680	Tricot Bms.	2.51	2.21			
30-26	0.52	0.52	200/280	Bobbins	2.49	2.21			
30-26	0.52	0.52	200/280	Tricot Beams	2.59	2.21			
40-7	0.52	0.52	300	Bobbins	2.11	1.81			
40-10	0.52	0.52	200/280	Bobbins	2.01	1.81			
40-10	0.52	0.52	200	Tricot Beams	2.11	1.81			
40-13	0.52	0.52	200	Bobbins	2.01	1.81			
40-13	0.52	0.52	200	Tricot Bms.	2.11	1.81			
40-13	0.52	0.52	400	Bobbins	2.13	1.90			
40-13	0.52	0.52	680	Bobbins	2.06	1.96			
40-13	0.52	0.52	680	Tricot Bms.	2.16	1.81			
40-13	0.52	0.52	200	Bobbins	2.21	1.81			
50-10	0.52	0.52	200	Bobbins	2.11	1.76			
50-17	0.52	0.52	100/200	Bobbins	1.91	1.76			
50-17	0.52	0.52	200	Tubes	1.91	1.76			
50-17	0.52	0.52	680	Bobbins	2.01	1.76			
60-34	0.52	0.52	300	Bobbins	1.86	1.76			
60-20	0.52	0.52	200/280/288	Bobbins	1.82	1.65			
70-17	0.52	0.52	200/288	Bobbins	1.71	1.66			
70-34	0	0	100	Tubes	1.71	1.66			
70-34	0.52	0.52	100/200	Bobbins	1.71	1.66			
70-34	0	0	105/205	Paper Tube	1.71	1.66			
70-34	0	0	200/285	Tubes	1.71	1.66			
70-34	0.52	0.52	280	Bobbins	1.71	1.66			
70-34	0.52	0.52	288	Bobbins	1.71	1.66			
70-34	0.52	0.52	300	Bobbins	1.76	1.66			

70-34	0.52	680	Bobbins	1.76	1.66
70-34	0	680	Tubes	1.76	1.66
80-26	0.52	200	Bobbins	1.71	1.60
90-26	0.52	200/288	Bobbins	1.76	1.66
100-34	0.52	300	Bobbins	1.70	1.60
100-34	0	300	Tubes	1.70	1.60
100-34	0.52	680	Bobbins	1.70	1.60
100-50	0.52	200/288	Bobbins	1.71	1.60
110-50	0.52	200	Bobbins	1.71	1.60
140-68	0.52	100	Bobbins	1.60	1.55
140-68	0	200	Tubes	1.60	1.55
140-68	0.52	200/288	Bobbins	1.60	1.55
140-68	0	205	Tube	1.60	1.55
140-68	0.52	300	Bobbins	1.65	1.55
200-20	12	100	Bobbins	1.49	1.44
200-34	0	100	Tubes	1.49	1.44
200-34	0.72	100	Bobbins	1.49	1.44
200-34	0	105	Tube	1.49	1.44
200-34	0.72	680	Bobbins	1.54	1.44
200-68	0.72	100/200	Bobbins	1.56	1.46
210-34	0	300	Tubes	1.49	1.44
210-34	0.72	300	Bobbins	1.49	1.44
210-34	0	305	Beam	1.54	1.44
210-34	0.72	305	Tube	1.49	1.44
210-34	0.72	330	Bobbins	1.59	1.44
260-17	12	300	Bobbins	1.49	1.39
400-68	0.72	100	Bobbins	1.39	1.29
420-68	12	300	Bobbins	1.39	1.29
420-68	12	300	Beams	1.44	1.29
520-34	12	300	Bobbins	1.39	1.29
630-102	0.72	300	Bobbins	1.39	1.29
780-51	12	300	Bobbins	1.39	1.29
800-140	0.52	100	Bobbins	1.39	1.29

Nylon Filament "Antron" Yarn Prices

30-10	0.52	560 S.D.	Bobbins	2.46	2.31
40-13	0.52	560 Dull	Bobbins	2.16	2.06
40-13	0.52	560 S.D.	Bobbins	2.11	2.01
50-17	0.52	560 S.D.	Bobbins	2.01	1.86
70-34	0	565 S.D.	Paper Tube	1.81	1.76
70-34	0.52	560 S.D.	Bobbins	1.81	1.76
70-34	0	560 S.D.	DW Tube	1.81	1.76
200-20	0.72	560 Brt.	Bobbins	1.54	1.49
200-34	0.72	560 S.D.	Bobbins	1.54	1.49
200-34	0	565 S.D.	Paper Tube	1.54	1.49
520-34	12	560 Brt.	Bobbins	1.44	1.34

Color-Sealed Black Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
30-10	0.52	140	Bobbins	\$2.71	\$2.56
40-13	0.52	140	Bobbins	2.36	2.16
70-34	0.52	140	Bobbins	2.06	2.01
100-34	0.52	140	Bobbins	2.00	1.95
200-20	0.72	140	Bobbins	1.84	1.79
200-34	0.72	140	Bobbins	1.84	1.79
260-20	12	140	Bobbins	1.84	1.79

Industrial Yarn

840-140	0.52	*707	Cone	.95	
5040-840	0	*707	Paper Tube	.99	
7560-1260	0	*707	Paper Tube	.98	
10080-1680	0	*707	Paper Tube	.98	
15120-2520	0	*707	Paper Tube	.98	

* Made for cordage use.

840-140	0.52	300/700	Raschel Beams	1.00	
840-140	0.52	300/700	Al. Tbs.	.94	.92
840-140	0.52	300/700	Beams	.92	
1680-280	0.52	300/700	Al. Tbs.	.94	.92
1680-280	0.52	300/700	Beams	.92	
2520-420	0	700	Paper Tube	.97	
4200-700	0	700	Paper Tube	.96	
5040-840	0	700	Paper Tube	.96	
7560-1260	0	700	Paper Tube	.95	
10080-1680	0	700	Paper Tube	.95	
15120-2520	0	700	Paper Tube	.95	

These prices are subject to change without notice. Terms: Net 30 Days.

Types

Type 100—Bright, normal tenacity.
Type 105—Bright, normal tenacity, low shrinkage (5-7%)
Type 140—Bright, color-sealed, black, normal tenacity.
Type 200—Semi-dull, normal tenacity.
Type 205—Semi-dull, normal tenacity, low shrinkage (5-7%)
Type 209—Semi-dull, normal tenacity, improved light durability and dye light fastness.
Type 280—Semi-dull, normal tenacity, improved light durability and dye light fastness.
Type 288—Semi-dull, normal tenacity, for Texturing.
Type 300—Bright, high tenacity.
Type 305—Bright, high tenacity, low shrinkage (5-7%)
Type 330—Bright, high tenacity, more heat & light resistant.
Type 400—Semi-dull, high tenacity.
Type 560—Luster as designated—Modified cross section.
Type 565—Luster as designated—Modified cross section, low shrinkage.
Type 680—Dull, normal tenacity.
Type 700—Bright, high tenacity.
Type 707—Bright, high tenacity cordage yarn.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Following are invoiced as a separate item.

Bobbins—25 cents or 45 cents depending on type
Aluminum Tube—40¢ each
Draw Winder Tubes—\$1.00
Industrial & Section Beams—\$220.00 each
Racks for Industrial & Section Beams—\$115.00 each
Tricot Beams—\$95.00 or \$250.00 each depending upon type
Racks for Tricot Beams—\$70.00 or \$130.00 each depending upon type
Raschel Beams—\$85.00 or \$100.00 each depending upon type
Racks for Raschel Beams—\$70.00 each
Tricot and Raschel Beams are billed at the above prices if not returned within 90 days from date of invoice.
Section Beams are billed after 60 days, and Industrial Beams after 30 days.
(Beams and Racks are deposit carriers and remain the property of E. I. du Pont de Nemours & Co., Inc.)

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"™

Denier & Filament	Turns/Inch	Luster	Type*	Package	Tubes 1st Gr.
30-14	0	Bright	55	Tube	\$2.71
30-20	0	Semidull	56	Tube	2.71
40-27	0	Semidull	56	Tube	2.31
40-27	0	Bright	55	Tube	2.31
40-27	0	Dull	57	Tube	2.36
70-34	0	Semidull	56	Tube	1.91
70-14	0	Bright	55	Tube	1.91
70-34	0	Bright	55	Tube	1.91
70-34	0	Dull	57	Tube	1.96
100-34	0	Semidull	56	Tube	1.84
140-28	0	Bright	55	Tube	1.79
150-34	0	Semidull	56	Tube	1.79
220-50	0	Bright	51	Tube	1.76
250-50	0	Bright	55	Tube	1.76
1100-250	0	Bright	51	Cone	1.50
1100-250	0	Bright	52	Cone	1.50
1100-250	Ro2	Bright	52	Cone	1.50
1100-250	Ro2	Bright	52	Beam	1.52

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route within the Continental limits of the U. S., excluding Alaska.

Yarn Types

* Type:

Type 51—Bright, high tenacity.

Type 52—Bright, high tenacity.

Type 55—Bright, normal tenacity.

Type 56—Semidull, normal tenacity.

Type 57—Dull, normal tenacity.

Tubes are invoiced as a separate item at \$.70 each.

Industrial beams and cradles are billed if not returned within 30 days from date of invoice. They are then billed as separate items at \$220.00 per beam and \$115.00 per cradle and are returnable for credit.

* "DACRON" is DuPont's registered trade-mark for its polyester fiber.

SARAN

The National Plastics Products Company—

Fibers Division

Odenton, Maryland

Current Prices:

CONTINUOUS FILAMENT

Type	Twist p. l.	Natural	Colors
750/20*	3	1.75	1.80

* For filter fabrics and other industrial purposes only.

F.O.B. Odenton, Maryland.

Terms: Net 30 days.

NON CELLULOSIC STAPLE & TOW

ACRYLIC

American Cyanamid Co.

Fibers Division

Effective Date: November 24, 1959

Cyanamid Acrylic Staple

	1st Grade Price (per pound)
2.0 Denier Bright and Semi-Dull	\$1.28
3.0 Denier Bright and Semi-Dull	1.18
5.0 Denier Bright and Semi-Dull	1.18
15.0 Denier Bright, Semi-Dull and Dull	.93

Staple Lengths: 1½", 2", 2½", 3", 3½", 4", 4½".

Information provided on request for Deniers, Lengths and Lusters not listed above.

Prices are subject to change without notice.

Terms: Net 30 Days.

F.O.B. Shipping Point—Minimum transportation allowed (Seller's route and method) within the continental limits of the United States excluding Alaska. If Buyer requests and Seller agrees to a route or method involving higher than minimum rate, Buyer shall pay the excess transportation cost.

Note: CRESLAN® is Cyanamid's registered trademark for certain of its acrylic fibers. Use of this trademark is authorized only on properly constructed fabrics, after they have been tested and approved by Cyanamid.

The Chemstrand Corp.

Current Prices

"Acrilan"™

Effective July 1, 1960

	Acrilan	Acrilan 16
1.0 denier Semi-Dull and Bright staple		\$1.28
2.0 denier Semi-Dull and Bright staple & tow	\$1.18	1.18
2.5 denier Hi-Bulk Bright and Semi-dull staple and tow	1.18	1.18
3.0 denier Bright & Semi-dull staple & tow	1.18	1.18
5.0 denier Bright & Semi-dull staple & tow	1.18	1.18
8.0 denier Bright & Semi-dull staple & tow	1.18	1.18
15.0 denier Bright & Semi-dull staple & tow	.93	.97
2.5 denier Bright & Semi-dull staple —dope dyed (black)		1.48
3.0 denier Bright & Semi-dull staple & tow dope dyed (black)		1.48

Terms: Net 30 days. Freight prepaid within Continental U. S. & Puerto Rico.

* "Acrilan" is Chemstrand's registered trademark for its acrylic fiber.

The Dow Chemical Company

Textile Fibers Department

Current Prices

"Zefran"™ Acrylic Staple

2.0 denier Semidull & Bright—Staple only	\$1.28
3.0 denier Semidull & Bright—Staple only	1.28
6.0 denier Semidull & Bright—Staple only	1.18
100% Blends of ZEFRA acrylic fiber (For the Woolen System)	
Type W-2 (average denier of about 2.5)	\$99
Type W-4 (average denier of about 4.5)	.94

Terms: Net 30 days.

Transportation Terms: F.O.B. shipping point—Freight prepaid our route within the continental limits of the U. S., excluding Alaska.

* Registered trademark of The Dow Chemical Co.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Orlon"™ Acrylic Staple & Tow

Type 42	Staple Length	Tow Blds.	1st Grade
1.0 Denier Semidull	1½, 1¾, 2, 2½, 3	420M	\$1.28
2.0 Denier Semidull & Bright	1½, 1¾, 2, 2½, 3, 4½	470M	1.28
3.0 Denier Semidull & Bright	1½, 1¾, 2, 2½, 3, 4½	470M	1.28
3.0 Denier Color-sealed Black	1½, 1¾, 2, 2½, 3, 4½	470M	1.63
5.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.18
6.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.55
4.5 Denier Semidull	1½, 2, 2½, 3, 4½	470M	1.18
10.0 Denier Semidull & Bright	1½, 2, 2½, 3, 4½	470M	1.18
10.0 Denier Color-sealed Black	1½, 2, 2½, 3, 4½	470M	1.55

High Shrinkage Staple price as Regular Staple

Type 25 \$1.08

This product is designed for Cotton/Rayon System Spinning and is 2.5 denier, 1½" semidull regular shrinkage staple.

Type 39 \$94

This product is designed for woolen system spinning and is a blend of deniers (average 4.2) with a variable cut length.

Type 30A \$99

This product is designed for woolen system spinning and is a blend of predominately fine deniers (average 2.4) with a variable cut length.

Type 39B \$94

This product is designed for woolen system spinning and is a blend of predominately heavy deniers (average 6.5) with a variable cut length.

"ORLON SAYELLE"™

3.0 denier semidull variable 2½" to 5" average 3¾" staple \$1.53

6.0 denier semidull variable 2½" to 5" average 3¾" staple 1.50

F.O.B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.

* "ORLON" is Dupont's Registered Trade-mark of its Acrylic Fiber.

"ORLON SAYELLE"™ is Dupont's Trade-mark for its bi-component Acrylic fiber.

MODACRYLIC

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Current

"Verel"™ Staple and Tow

Deniers	Dull and Bright \$1.02 per pound
2 and 3	
5, 8, and 12	.92
16 and 20	.88
24 denier	.93

Prices are subject to change without notice.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Verel" is a trade-mark of the Eastman Kodak Co.

Union Carbide Chemicals Co.

Div. Union Carbide Corp.

Textile Fibers Dept.

Effective May 1, 1959

Dynel Staple & Tow

Natural Dynel	
2 Denier, Staple and Tow	1.20 per lb.
3, 6, and 12 Denier, Staple and Tow	1.10 per lb.
24 Denier, Staple and Tow	1.05 per lb.
Dynel Spun with Light Colors:	
Blond, Pewter, and Gray	
3 and 6 Denier, Staple and Tow	1.30 per lb.
Dynel Spun with Dark Colors:	
Black, Charcoal, Brown, Caramel, Green, and Blue	
3 and 6 Denier, Staple and Tow	1.40 per lb.
Dynel Type 80, 12 Denier	.92 per lb.
Dynel Type 63 High Shrinkage (3 Denier only)	Add \$.05 per lb. to above prices

Prices are quoted F.O.B. shipping point, freight prepaid our route, within continental limits United States, excluding Alaska and Hawaii.

NYLON

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Staple and Tow

Denier	Type	Staple Length	Tow Bundle	1st Grade Price/Lb.	2nd Grade Staple Price/Lb.
1.5	200	1½"—4½"	None made	\$1.33	\$1.18
1.5	201	1½"—4½"	None made	1.35	1.20

2.3	420	1 1/4" only	None made	1.28	1.13
3.0	100/200	1 1/4"-4 1/2"	430M	1.28	1.13
3.0	101/201	1 1/4"-4 1/2"	455M	1.30	1.15
6.0	100	1 1/4"-6 1/2"	330M	1.28	1.13
6.0	101	1 1/4"-6 1/2"	345M	1.30	1.15
15.0	100	1 1/4"-6 1/2"	425M	1.08	.....
15.0	101	1 1/4"-6 1/2"	None made	1.10	.....
15.0	600	1 1/4"-6 1/2"	425M	1.10	.....
15.0	601	1 1/4"-6 1/2"	None made	1.12	.....

Staple lengths are restricted to the range shown opposite each denier above. The actual cut lengths within these ranges are as follows:

1 1/4", 1 1/2", 2, 2 1/2", 3, 4 1/2" and 6 1/2"

Types

Type 100 Bright, normal tenacity, not heatset.
Type 101 Bright, normal tenacity, heatset.
Type 200 Semidull, normal tenacity, not heatset.
Type 201 Semidull, normal tenacity, heatset.
Type 420 Semidull, high tenacity, high modulus, no crimp.
Type 600 Dull normal tenacity, not heatset.
Type 601 Dull normal tenacity, heatset.

These prices are subject to changes without notice.

Terms—Net 30 Days.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route within the continental limits of the United States, excluding Alaska.

Industrial Rayon Corp.

Effective August 18, 1958

Nylon Staple

1.5 denier	.....	\$1.33 per lb.
2, 3 and 6 denier	.....	1.28 per lb.
8 denier	.....	1.15 per lb.
15 and 22 denier	.....	1.08 per lb.

Bright, semi-dull, and full-dull. Required lengths.

Terms: Net 30 days f.o.b. point of shipment, title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points in continental United States except Alaska.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

NYTRIL

Celanese Fibers Company

DARVAN

Effective Nov. 21, 1958

Type	Not Crimp Set	Crimp Set
3, 4 1/2 and 6 Denier	\$1.45	\$1.50
1 1/2, 2 Denier	\$1.50	\$1.55

Pack in 100 Lb. and 500 Lb. Bales, Net

Staple lengths 1 1/2, 2, 3, 4 1/2

Tow—90,000 Total Denier

Bright, Semi-dull, Dull

(Deniers and lengths of staple not listed above are available upon special request.)

Terms: Net 30 Days.

F.O.B. Shipping Point (Avon Lake, Ohio) Minimum freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if overland, or port of exit of purchaser's choice east of the Mississippi River.

OLEFIN

Industrial Rayon Corporation

Olefin Staple and Tow

Prolene Staple

Bright Luster

2, 3, 6, and 15 Denier, crimped \$9.00

Available in 1 1/2" to 6" lengths

Prolene Tow

Bright Luster

2, 3, 6, and 15 Denier, crimped \$9.00

Terms: Net 30 days f.o.b. point of shipment, title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points in continental United States except Alaska.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

POLYESTER

Beaunit Mills Inc.

Vycron Polyester

Current Prices

	Denier	Price Per Lb.
	1.5	\$1.00
	3.0	1.00
Staple Cuts are 1 1/2" to 6".	1.5	1.00
	3.0	1.00

Tow for Converters

(Tow Bundle 200,000 Denier)

Spun Dyed Black 10¢ per lb. extra.

Terms: Net 30 days, F.O.B. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point. Prices subject to change without further notice.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices

"Dacron"*** Staple and Tow

Denier	Luster	Type*	Length	Tow Bundle	1st Gr.
1.5	Semidull	54	1 1/4"-1 1/2"	None made	1.26
2.25	Semidull	64	1 1/4"-4 1/2"	450M	1.41

3.0	Semidull	54	1 1/4"-4 1/2"	450M	1.36
3.0	Semidull	61	1 1/4"-4 1/2"	None made	1.36
3.0	Semidull	64	1 1/4"-4 1/2"	450M	1.41
4.5	Semidull	54	1 1/4"-4 1/2"	450M	1.31
4.5	Semidull	64	1 1/4"-4 1/2"	450M	1.36
6.0	Semidull	54	1 1/4"-4 1/2"	450M	1.31
6.0	Semidull	61	1 1/4"-4 1/2"	None made	1.31
6.0	Semidull	64	1 1/4"-4 1/2"	450M	1.36

* Type:

Type 54—Semidull, Normal Tenacity.

Type 61—Industrial Staple having 45% Shrinkage. Not intended for Dyeable Uses.

Type 64—More Pill Resistant Staple, with Greater Dyeing Versatility.

"Dacron" Polyester Color-Sealed Black Staple and Tow

2.25	Color Sealed Black	64	1 1/4"-4 1/2"	450M	1.76
3.0	Color Sealed Black	64	1 1/4"-4 1/2"	450M	1.76

F. O. B. Shipping Point—Freight prepaid our route within the continental limits of the United States, excluding Alaska.

** Dupont's Registered Trade-mark for its Polyester Fiber.

Eastman Chemical Products, Inc.

Tennessee Eastman Co. Current

"Kodel"***

Deniers	Semi-Dull Staple	Tow	Black	Brown	Blue
1.5	\$1.33	\$1.41	.....	.....	.....
2.25	1.41	1.41	\$1.76	.....	.....
3.0	1.41	1.41	1.76	\$1.86	\$1.96
4.5	1.36	1.36	.....	.....	.....

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in continental United States, except Alaska. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

* "Kodel" is a trade-mark of the Eastman Kodak Company.

Celanese Fibers Company

Current Prices Effective June 10, 1960

Fortrel Polyester Staple and Tow

Denier	Staple Luster	Price
1.5	Semi-dull	\$1.26
3	Semi-dull	1.36
4.5	Semi-dull	1.31
6	Semi-dull	1.31

Staple lengths 1 1/2", 2" and 3".

All staple packaged in 500 pound bales.

Denier	Tow Luster	Price
1.5	Semi-dull	\$1.36
3	Semi-dull	1.36
4.5	Semi-dull	1.31
6	Semi-dull	1.31

Total denier of all tow is 225,000.

All tow packaged in 300 to 400 pound cartons.

TERMS: Net 30 days. F.O.B. destination—Freight prepaid our route within the continental limits of the United States, excluding Alaska. Prices subject to change without notice.

VINYON

American Viscose Corp. Effective October 1, 1956

Avisco Vinyon Staple

1.5 denier 1 1/2"	Unopened	\$9.00 per lb.
3.0 denier 1 1/2"	Unopened	.80 per lb.
3.0 denier 1 1/4"	Unopened	.80 per lb.
3.0 denier 1 1/4"	Opened	.90 per lb.
3.0 denier 2"	Opened	.90 per lb.
5.5 denier 1"	Opened	.90 per lb.
5.5 denier 1 1/2"	Unopened	.80 per lb.

Terms: Net 30 days.

SARAN

The National Plastics Products Company—

Fibers Division

Odenton, Maryland

Current Prices: Saran Staple

Type	Denier	Natural	Colors
2Y—Upholstery	22	\$0.70	\$0.75
2Y—Upholstery	16	.74	.79
3Q—Industrial Fabrics	22	.68	.72
1C—Carpets	22	.68	.72
1M—Mops	22	.68	.72

In any staple length 1 1/2 to 6". Also 45 denier, 7" cut.

F.O.B. Odenton, Maryland.

Terms: net 30 days.

GLASS YARN

Owens Corning Fiberglas Corp.

A Decorative Continuous Yarn

DE 150 1/0 1.0 TPI 53¢ per lb.
F.O.B. Freight Allowed.

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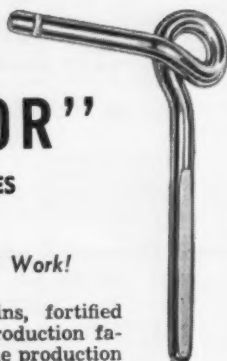
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Elect Bates Officers

Felix A. Buskey has been elected chairman of the board of directors of Bates Chemical Co., at a meeting of directors following the stockholders meeting of the food coloring firm, recently acquired by Crompton & Knowles Corp. Also elected were: Guy C. Bates, as president; William R. Bates, vice president; James Barringer, treasurer, and Charles H. Brown, secretary. Dr. Joseph S. Bates, founder of the company, remains as a director and consultant.

Named as directors were: James Barringer, Dr. Bates, Guy Bates, Mr. Buskey, and Frederic W. Howe, Jr.

Bates Chemical has been reorganized as a wholly-owned Crompton & Knowles subsidiary. Bates, the only company in the country whose entire output is food coloring, was founded in 1924.

STATIC?

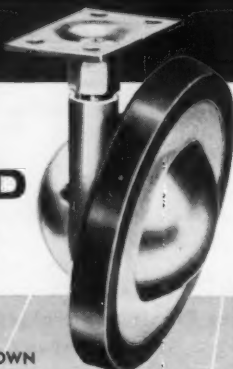
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Calendar of Coming Events

Nov. 2—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
 Nov. 10—Thread Institute annual meeting. Hotel Commodore, New York, N. Y.
 Nov. 10-11—American Institute of Electrical Engineers conference on electrical application in the textile industry. North Carolina State College, Raleigh, N. C.
 Nov. 12—Textile Education Foundation, Inc., A. French Textile School, Georgia Institute of Technology, Atlanta, Ga.
 Nov. 12—Textile Education Foundation, Inc. Georgia Tech, Atlanta, Ga.
 Nov. 12—Alabama Textile Operating Executives carding and spinning discussion. Georgia Tech., Atlanta, Ga.
 Nov. 27-Dec. 2—ASME annual winter meeting. Statler-Hilton Hotel, New York, N. Y.
 Nov. 28-Dec. 2—Power & Mechanical Engineering Exhibition. Coliseum, New York, N. Y.
 Dec. 2—AATT Piedmont Chapter meeting. Hotel Poinsett, Greenville, S. C.
 Dec. 7—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
 Dec. 7—NASMI Board of Directors meeting. Commodore Hotel, New York, N. Y.
 1961
 Jan. 16-19—Instrument Society of America conference and exhibit. Sheraton-Jefferson Hotel and Kiel Auditorium, St. Louis, Mo.

Feb. 7-9—2nd Canadian Textile Conference sponsored by Textile Technical Federation of Canada and Primary Textiles Institute. Queen Elizabeth Hotel, Montreal, Que.
 Feb. 8—AATT annual meeting. Hotel Commodore, New York, N. Y.
 Mar. 20-22—American Physical Society meeting. Monterey, Calif.
 Mar. 21-23—High-Polymer Physics Div., American Physical Society meeting. Monterey, Calif.
 Mar. 23-25—ACMI annual meeting. Fontainebleau Hotel, Miami Beach, Fla.
 Apr. 12-14—Alabama Textile Manufacturers Association annual meeting. Buena Vista Hotel, Biloxi, Miss.
 Apr. 16-18—Narrow Fabrics Institute spring meeting. The Tides Inn, Irvington, Va.
 Apr. 24-25—Underwear Institute annual meeting. Hotel Dennis, Atlantic City, N. J.
 Apr. 24-28—Knitting Arts Exhibition. Auditorium, Atlantic City, N. J.
 Apr. 26-29—Georgia Textile Manufacturers Association annual meeting. Hollywood Beach Hotel, Hollywood, Fla.
 June 5-8—ISA Summer Instrument-Automation conference and exhibit. Toronto, Canada.
 Jun. 5-9—Society of the Plastics Industry annual national conference and exposition. Commodore Hotel and Coliseum, New York, N. Y.
 Jul. 27-Aug. 1—IUPAC International Symposium on Macromolecular Chemistry. Queen Elizabeth Hotel, Montreal, Canada.
 Nov. 13-15—Narrow Fabrics Institute, Inc. meeting. Statler-Hilton, New York, N. Y.

Index to Advertisers

(See previous or subsequent issues)

Allen Beam Co.
 Allen Warner Co.
 Allentown Bobbin Works, Inc. ... 89
 Allied Chemical Corp.
 National Aniline Div. 18, 32, 33
 Semet-Solvay Petrochemical Div.
 Althouse Chemical Co.
 American Bemberg
 American Cyanamid Co. 16
 American Enka Corp.
 American Lava Corp. IV Cover
 American Tex. Mach-Exhibition
 American Viscose Corp. 23, 24, 25, 26
 Apex Chemical Co., Inc.
 Arkansas Co., Inc.
 Arnold Hoffman & Co.
 Atlantic Rayon Co. 93
 Atlas Electric Devices Co.
 Barber-Colman Co.
 Beaunit Mills, Inc. 8
 Belle Chemical Co.
 Borregaard Co., Inc., The
 Burlap Tubing Mfg. Co.
 Butterworth & Sons Co., H. W.
 Celanese Corp. of America
 Fibers Div. 10, 11
 Ciba Company, Inc.
 Chandler Machine Co.
 Chandler Sales & Service Co.
 Chemstrand Corp.
 Chemtex Inc.
 Clements Mfg. Co.
 Cocker Machine & Foundry Co.
 Collins Supply and Equipment Co. 98
 Corn Products Sales Co.
 Courtaulds (Alabama), Inc.
 Croon & Lucke GMBH
 Crompton & Knowles Corp. 34
 Curlator Corp. 35
 Dary Ring Traveler Co.
 Davidson Publishing Co. 58
 Dayco Textile Products Co.
 Dobson & Barlow, Ltd. 43
 Dommerich & Co., Inc., L. F. 87
 Dow Chemical Co., The
 Draper Corporation II Cover
 Duplan Corp. 42
 Du Pont de Nemours & Co., E. I.
 Dyestuffs Department
 Textile Fiber Department 14, 15
 Eastman Chem. Pro. Inc.
 Engelhard Industries, Inc.
 Baker Platinum Div. 13

Fabronics Corp. 84
 Fancourt Co., W. F.
 Fiske Bros. Refining Co.
 Lubriplate Division
 Fletcher Industries
 Forbes Marketing Research, Inc.
 Foster Machine Co.
 Electronic Sales Div.
 Franklin Process Co.
 Garland Mfg. Company
 Gaston County Dyeing Machine Co. 49
 Geigy Chemical Corp.
 Gessner Co., David
 Globe Dye Works Co. 82
 Goodyear Tire & Rubber Co.
 Chemical Div.
 Guider Specialty Co., The
 Gulf States Utilities Co.
 Hart Products Corp. 31
 Heaney Industrial Ceramic Co. 6
 Heresite & Chemical Co. 24
 Herr Mfg. Co., Inc. 17
 Hoffner Rayon Co.
 Howard Eros.
 Industrial Rayon Corp.
 Interchemical Corp.
 Iselin-Jefferson Financial Co.
 Inc. 89
 Kenyon-Piece Dyeworks, Inc.
 Kidde Manufacturing Co., Inc.
 Knitting Arts Exhibition
 Koppers Company, Inc.
 Lambertville Ceramic & Mfg. Co. 89
 Laurel Soap Mfg. Co. 91
 Leatex Chemical Co.
 Leosona Corporation 36, 37
 Lohrke Company, J. L. 7
 Loper Company, Ralph E.
 Lubriplate Division
 Fiske Bros. Refining Co.
 Madden's Textile Ceramics, Inc.
 Malina Company 93
 Marshall & Williams Corp.
 McBride Co., Inc., E. J.
 McCandless Corp.
 Metlon Corp.
 Milton Machine Works, Inc. 53
 Mitchell-Bissell Co.
 National Drying Machinery Co.
 Lubricant Co. 45
 National Starch & Chem. Corp. 51
 National Vulcanized Fibre Co.
 Lestershire Spool Div.
 Neufeld and Lall
 New York & New Jersey
 Lubricant Co.
 Nopco Chemical Co. 47

Onyx Oil Chemical Co.
 Perkins & Son, Inc., B. F. 38
 Polymer Industries
 Portland Company
 Putnam Chemical Corp.
 Reiner, Inc., Robert
 Reliable Sample Card Co., Inc.
 Riggs & Lombard, Inc.
 Riordan Sales Corp., Ltd. 12
 Roberts Company 5
 Rhodia, Inc.
 Rusch & Co.
 Saco-Lowell Shops 57
 Sandoz, Inc. 39, 40
 Sargent's Sons Corp., C. G. 80
 Scholler Bros. III Cover
 Scott & Williams, Inc.
 Scott Testers, Inc.
 Scragg, Ernest & Sons, Ltd. 98
 Shepherd Casters Inc. 98
 Simco Co., Inc. 98
 Snedeker & Co., Inc.
 Sonoco Products Co. 3
 Southern Shuttle Div. 55
 Steel Heddle Mfg. Co.
 Standard Chemical Products, Inc.
 Standard Engineering Works
 Stauffer Chemical Company
 Steel Heddle Mfg. Co. 55
 Talcott, James, Inc.
 Terrell Machine Co.
 Textile Banking Co.
 Textile Hall Corp.
 Textile Machine Works 9
 Traphagen School of Fashion
 Trumeter Co.
 Turbo Machine Co.
 Union Carbide Chem. Co.
 Div. Union Carbide Corp.
 Chemical Dept.
 Textile Fibers Dept.
 U.S. Ring Traveler Co.
 U.S. Textile Machine Co.
 Uster Corp.
 Verona Dyestuffs
 Von Kohorn International Corp.
 Walton & Lonsbury 83
 Whitin Machine Works
 Whitinsville Spinning Ring Co. 91
 Woonsocket Napping Mach. Co.

BUSINESS SERVICE

Bertner Yarns Co. 99
 Chas. P. Raymond Service Inc. 99
 Karl Koehne Publishing Co. 99
 Martin H. Gurley, Jr. 99

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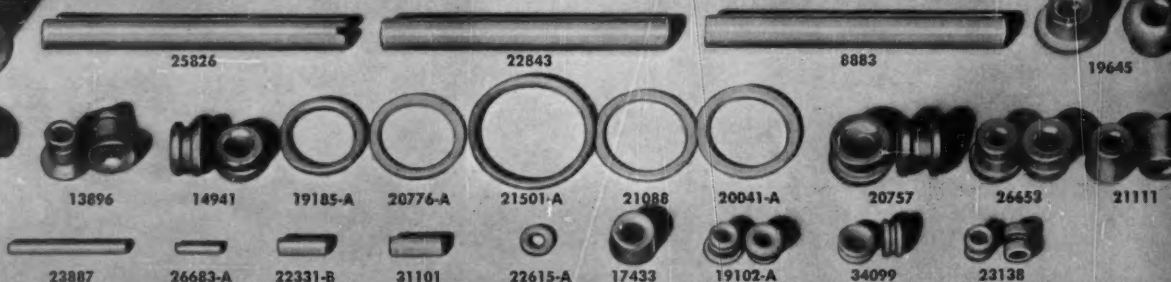
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